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REMOTE STORAGE

## GENERAL INDEX.

	Page.
FIFTH BIENNIAL REPORT OF THE BUREAU OF LABOR.....	17-544
Advance in average farm values.....	332, 468, 508, 520
Agricultural workers, male, number of.....	53
Agricultural workers, amount produced by each.....	412, 413, 416, 425, 520
Animals brought to perfection each year.....	436
Average values.....	39, 56, 218, 372, 511
Barley.....	216, 283, 372
Buckwheat.....	262, 283, 372
California, 84, 111, 161, 207, 220, 254, 275, 302, 324, 346, 384, 398, 472, 475, 478, 480, 883	
Causes affecting price variations.....	26, 33, 60, 125, 133
Cheap lands, shifting of grain fields to.....	55
Chicago wheat prices.....	174
Comparisons with report of United States senate committee's report.....	518, 521
Contents, table of.....	19
Corn, Indian.....	55, 69, 189, 283, 372
Corn, oats and wheat.....	189
Corn, oats, wheat, barley, buckwheat and rye.....	283
Corrected average values.....	40, 56, 80, 87, 89, 143, 375, 376, 410, 468, 508, 534
Corrected average values, imperfections of.....	376
Cost of production and transportation and prices.....	26, 47, 49, 50, 64, 78, 85, 95, 187, 188, 194, 217, 241, 263, 287, 383, 385, 419, 223
Cost of production.....	411, 620
Cotton.....	406, 419, 420, 515
Cows, milch.....	430, 444, 462, 475, 491, 504
Crops in the United States, information concerning.....	35
Currency and gold values.....	37
Currency, tariff legislation, and price variations.....	25, 31
Customs tariffs of other nations and prices.....	138
Data used in this report.....	35, 51, 406, 496, 509, 518
Decline of prices.....	171, 284, 372, 379, 405, 418, 419, 520
Defective data used in this report.....	518
Demand and supply and prices.....	27, 31, 50, 60, 96, 216, 263, 406
Demand and supply and purchasing power of money.....	37, 41, 50, 60, 96, 216, 263, 406
Discontent of American farmers.....	409
Effect of changing supply of gold and silver upon prices overestimated....	29
Errata.....	539
Export of wheat.....	187
Exterior states, group of, 90, 118, 168, 213, 235, 259, 261, 280, 307, 329, 351, 403, 421, 423	
Fall in wheat prices.....	131, 137
Farmers' income and silver legislation.....	78, 378
Farmers' income, changing.....	412, 413, 416, 423, 496, 520
Farmers and changing prices.....	410
Farm staples and live stock, prices compared.....	437
Foreign demand for farm products, and prices.....	61, 138, 139, 187, 418
Four central states and wheat prices.....	171
Georgia...83, 110, 160, 206, 239, 253, 301, 323, 345, 364, 384, 397, 471, 474, 479, 482	
Gold and silver, supply of, and prices.....	27, 28, 29
Gold and currency values.....	37
Graphic plates.....	53, 536
Gold, purchasing power of.....	518, 521, 524
Hard spring wheat, prices of.....	129, 130, 177, 180, 184
Hay.....	332, 372
High prices of 1867 to 1874.....	62, 135, 216, 285, 310, 379, 380, 417, 418, 438, 520
High prices of 1879 to 1882.....	61, 67, 36, 216, 284, 379, 380, 409, 417, 418, 438
High and low prices.....	216, 438, 520

162582

	Page.
Hogs .....	432, 449, 463, 486, 493, 505
Horses .....	427, 439, 461, 470, 484, 488, 503
Illinois.....	48, 69, 73, 101, 149, 192, 197, 220, 224, 266, 292, 314, 336, 356, 384, 389, 440, 445, 450, 457
Improved methods of breeding and feeding live stock .....	497
Index numbers .....	40, 42, 63
Index numbers according to relative importance.....	45, 63, 80, 87, 89, 98, 218, 242, 288, 333, 388, 410, 468, 507, 525
Index numbers, certain worthless, as measures of price movement.....	435, 509
Index numbers, comparison of different, 63, 80, 87, 89, 98, 218, 242, 288, 333, 428, 468, 535	454
Index numbers for live stock .....	289, 372, 508
Index numbers, incorrect, for 1862 to 1866.....	42, 46, 372
Index numbers, limitations of.....	55, 69, 189, 283, 372
Indian corn.....	72, 100, 148, 196, 219, 243, 265, 291, 313, 335, 355, 387, 439, 444, 449, 456
Indiana.....	48, 69, 75, 103, 142, 152, 171, 187, 192, 200, 222, 246, 268, 294, 316, 338, 358, 384, 363, 442, 447, 452, 459
Iowa.....	77, 94, 154, 171, 199, 224, 248, 270, 296, 318, 340, 360, 392, 443, 448, 453, 460
Kansas.....	82, 109, 159, 205, 228, 252, 274, 300, 322, 344, 363, 396, 471, 474, 477, 480, 482
Kentucky, 82, 109, 159, 205, 228, 252, 274, 300, 322, 344, 363, 396, 471, 474, 477, 480, 482	31, 65, 69, 311
King's, Gregory, law of prices .....	524
Labor, the only measure of value.....	523, 524
Labor, purchasing power of.....	407, 413, 416, 425, 520, 521, 524
Labor, return for agricultural .....	4
Law governing bureau of labor.....	31, 65, 69, 311, 334
Law governing price changes.....	2
Letter of transmittal.....	37, 426, 433, 456, 465, 476, 494, 498, 527
Live stock.....	454, 479, 501
Live stock, index numbers for.....	497
Live stock, improved methods of breeding and feeding.....	436, 509
Live stock brought to perfection each year.....	427
Live stock values as a check upon other price statistics.....	60, 125, 419, 523
Local causes for price changes.....	184, 185
Local prices of wheat in Minnesota.....	216, 520
Low and high prices .....	124, 184
Market quotations and government estimates.....	74, 101, 150, 198, 221, 255, 266, 293, 315, 337, 357, 393, 440, 445, 450, 457
Michigan.....	128, 132, 419
Milling inventions and wheat prices.....	430, 444, 462, 485, 491, 504
Milch cows.....	184, 185
Minnesota prices of wheat.....	76, 103, 153, 171, 201, 223, 247, 269, 295, 317, 339, 359, 391, 441, 447, 452, 459
Minnesota.....	189, 283
Mississippi Valley, rise of prices in.....	75, 102, 151, 199, 223, 246, 267, 294, 316, 338, 358, 390, 441, 446, 451, 458
Missouri.....	429, 439, 461, 470, 484, 490, 503
Mules.....	77, 104, 153, 171, 201, 224, 247, 269, 296, 318, 340, 360, 392, 443, 448, 453, 460
Nebraska.....	81, 108, 158, 204, 227, 251, 273, 299, 321, 343, 362, 384, 395, 470, 473, 476, 479, 481
New York.....	129
New process of milling wheat.....	372, 525, 529, 532
Nine crops in combination.....	137
Oatmeal and wheat prices .....	84, 189, 283, 372
Oats.....	70, 100, 148, 196, 219, 243, 265, 291, 313, 335, 355, 387, 439, 444, 449, 456
Ohio.....	430, 444, 462, 485, 492, 504
Oxen and other cattle.....	62, 67, 69, 138, 290, 311, 539
Panic of 1893 and prices.....	66, 93, 97, 120, 170, 187, 194, 215, 217, 237, 239, 263, 282, 285, 309, 311, 331, 334, 353, 371, 381, 405, 407, 423
Per capita and prices.....	82, 109, 159, 205, 228, 252, 274, 300, 322, 344, 363, 384, 396, 470, 473, 476, 479, 481
Pennsylvania.....	57
Periods of time, long and short.....	53
Population, number of.....	310, 372
Potatoes.....	523
Power, purchasing, of labor.....	

	Page.
Precious metals, supply and prices .....	27, 28, 29
Precious metals, and purchasing power of money .....	27, 28, 29
Prices and changes in cost of transportation and production.....	26, 47, 49, 50, 64, 78, 85, 95, 187, 188, 194, 217, 241, 263, 287, 383, 385, 419, 523
Prices and supply and demand.....	27, 31, 50, 60, 96, 216, 263, 406
Prices and per capita product ..66, 93, 97, 120, 170, 187, 194, 215, 217, 237, 239, 263, 282, 285, 309, 311, 331, 334, 353, 371, 381, 405, 407, 423	
Prices and the panic of 1893.....	62, 67, 69, 138, 290, 311
Prices and changing foreign demand for farm products.....	61, 138, 139, 187, 418
Prices and the supply of precious metals.....	27, 28, 29
Prices, causes affecting.....	26, 33, 60
Price changes, law regulating.....	31, 65, 69, 311, 334
Prices, advance of.....	189, 283, 379, 418, 511
Prices, decline of.....	191, 284, 372, 379, 406, 418, 419, 512
Prices of wheat and milling inventions.....	128
Prices of hard spring wheat.....	129, 130, 173, 174
Prices of corn.....	59
Prices of grain and new sources of supply.....	55
Prices of farm staples and live stock compared.....	437
Prices of farm products, rise of.....	189, 283, 379, 418, 511
Prices of, periods of high...62, 135, 136, 216, 284, 285, 310, 379, 380, 409, 417, 418, 438	
Prices, stability of.....	70, 94, 192, 262, 311, 418
Prices and wages ..	34
Price statistics, checks upon.....	427
Price statistics and the silver question.....	30
Price variations, and tariff and currency legislation .....	25, 31
Production and transportation, change in cost and prices.....	26, 47, 49, 50, 64, 78, 85, 95, 187, 188, 194, 217, 241, 263, 287, 373, 375, 419
Productivity of labor on the farms, increase of.....	413, 416, 425
Purchasing power of gold.....	518, 521, 523, 524
Purchasing power of human labor.....	523, 524
Purchasing power of money, and supply and demand...27, 31, 50, 60, 96, 216, 263, 406	
Purchasing power of money, and the supply of precious metals.....	27, 28, 29, 31
Railway rates of transportation .....	523
Reciprocity laws and prices.....	138
Report, data used in this .....	35, 51, 406
Rise of prices.....	189, 293, 379, 418
Rogers, Prof. James E. Thorold, and prices.....	32
Russian wheat growing.....	134
Rye .....	238, 283, 372
Sauerbeck, Mr., and price investigations.....	30, 46
Seaboard states, decline of prices in.....	151, 284, 419, 523
Seaboard states, effect of Western competition upon, how to prevent.....	469
Senate, United States, committee's investigation report, comparisons with .....	518, 521
Seven states, group of .....36, 53, 81, 86, 113, 163, 191, 203, 231, 255, 276, 303, 325, 347, 366, 399, 414, 465, 512, 519, 523, 525, 526, 527	
Seventeen states, group of.....	36, 88, 115, 165, 210, 233, 257, 278, 305, 327, 349, 367, 401, 409, 416, 424, 514, 525, 5, 6, 528
Sheep.....	431, 449, 463, 486, 492
Silver and gold and purchasing power of money.....	27, 28, 29
Silver and gold, supply of and prices.....	27, 28, 29
Silver and price statistics.....	30
Silver legislation and farmers' income .....	68, 378
Silver legislation of 1873 and prices .....	25, 31, 99, 123, 419
Sources of grain supply, new, and prices .....	55
Spring and winter wheat contrasted.....	127, 144, 173, 174
Stability of prices.....	70, 94, 192, 262, 311, 418
Statistics of prices and the silver question.....	30
Statistics of prices, checks upon.....	427
Supply and demand and prices .....	27, 31, 50, 60, 96, 216, 263, 406
Supply and demand, purchasing power of money.....	27, 31, 50, 60, 96, 216, 263, 406
Swine.....	423, 449, 463, 476, 493
Tables, arrangement of.....	53



	Page.
Tariff and currency legislation, and price variations.....	25
Ten crops.....	409, 526, 531
Ten states, group of.....	36, 54, 79, 106, 156, 190, 202, 225, 249, 271, 297,
	319, 341, 361, 393, 410, 456, 461, 511, 523, 525, 526
Texas.....	84, 110, 161, 207, 230, 254, 302, 324, 346, 355, 398, 472, 475, 478, 480, 483
Tobacco.....	354, 372
Transportation, changes in cost of, and prices.....	26, 47, 49, 50, 62, 78,
	85, 95, 187, 188, 194, 217, 241, 263, 287, 383, 385, 419
United States.....	92, 119, 169, 214, 236, 260, 281, 308, 330, 352, 370,
	404, 416, 422, 498, 514
Virginia.....	83, 109, 160, 206, 229, 253, 275, 301, 321, 345, 364, 384, 396,
	471, 474, 477, 479, 482
Wages and prices.....	34, 521
Western farmers and wheat prices.....	140
Wheat.....	121, 189, 283, 372
Wheat prices and silver legislation.....	123
Wheat prices and milling inventions.....	128, 132, 419
Wheat prices and oatmeal.....	137
Wheat prices in Minnesota, Iowa, Nebraska and Kansas.....	171
Wheat growing in Russia.....	134
Wheat prices, where stable.....	122
Winter wheat, decline in prices.....	126, 137, 145, 172, 174
Winter and spring wheat, prices contrasted.....	127, 144, 173, 174
Wisconsin.....	74, 102, 151, 198, 221, 245, 267, 293, 315, 337, 357, 389,
	441, 446, 451, 458

SEVENTH BIENNIAL REPORT OF THE STATE BOARD OF COR-	Page.
RECTIONS AND CHARITIES.....	555-614
County boards of visitors.....	610
Details of the trustees estimates for special appropriations.....	596
Estimates of current expenses.....	585
Expenses of the board.....	614
Fergus Falls state hospital.....	569
Finances of state institutions.....	583
Former recommendations renewed.....	564
Fourth hospital for insane.....	570
Hospitals for insane.....	566
Immigration of dependents.....	606
Law governing the state board of corrections and charities.....	606
Meetings of the board.....	609
Minnesota prison association.....	562
Pauper enumeration, June, 1896.....	560
Population and expenses of the state institutions.....	557
Prefatory note (enumerating recommendations).....	563
Recommendations to the legislature.....	569
Rochester state hospital.....	568
St. Peter state hospital.....	574
School for the blind.....	572
School for the deaf.....	574
School for the feeble minded.....	571
Soldiers' home.....	608
State conference of charities and correction.....	565
State institutions.....	580
State prison.....	576
State public school.....	578
State reformatory.....	576
State training school.....	603
Statistics of crime.....	605
Statistics of pauperism.....	583
Table 1—Statement of appropriations.....	584
Table 2—Financial condition of the state institutions July 31, 1896.....	584
Table 3—Appropriations for the year ending July 31, 1897.....	584

	Page.
Table 4—Comparison of estimated and actual number of inmates of state institutions.....	585
Table 5—Estimate of current expenses for the two fiscal years 1898 and 1899.....	586
Table 6—Comparison of estimated and actual current expenses, 1895-96,	588
Table 7—Comparison of current expense appropriations for 1896-97, with estimates for 1897-98.....	589
Table 8—Per capita statement of current expenses for four years ending July 31, 1896.....	590
Table 9—Estimate of current expenses for three years compared with experience for eighteen years.....	592
Table 10—Special appropriations asked for 1898-99.....	593
Table 11—Special appropriations asked and granted in 1891, 1893 and 1895.....	594
Table 12—Amount expended for lands, buildings, etc., in eighteen years,	594
Table 13—Trustees' estimate of special appropriations to be asked, 1897-99.....	595
Wisconsin system of caring for the insane.....	566

## SIXTH BIENNIAL REPORT OF THE MINNESOTA STATE DAIRY AND FOOD COMMISSIONER..... 673-872

### PART I.

Alden Vinegar Co. vinegars.....	690-692
Butter.....	684, 685
Baking powders.....	692, 693
Cheese.....	687, 688
Comparative table of bees and honey.....	699
Filled cheese seizures.....	689
Financial statement.....	714
Honey.....	698
Honey prosecutions.....	699
Introduction of Commissioner Anderson's report.....	677-680
Lard and lard seizures.....	689, 690
Milk.....	580-682
Milk prosecutions.....	683, 684
Milk standard of various states.....	682
Minnesota State Dairy and Food Commission.....	675
Oleomargarine.....	685, 686
Oleomargarine seizures.....	686, 687
Stable inspection, 1895, St. Paul.....	699-706
Stable inspection, 1896, St. Paul.....	706-713
Table of alum powders.....	694-697
Table of cream of tartar powders.....	693
Table of milk analyses.....	681
Table of phosphate powders.....	693
Vinegar.....	690

### PART II.

Building new creameries.....	732
Creamery directory, 1896.....	718-729
Creamery growth and notes.....	716, 717
Creamery statistics.....	730
Filled cheese law.....	734
Low prices of butter.....	733
Our dairy laws.....	734, 735
Our reputation.....	733
Remarks on dairy map.....	716
Report of E. J. Graham, assistant commissioner.....	715
Starting a creamery.....	730
Separators.....	732
The unfortunate places.....	731



## PART III.

Page.

Introduction.....	736
Completeness of analyses.....	737
Educational work of department.....	736
Extensive work on baking powder.....	736
Inadequate standard for full cream cheese.....	737
Infant and invalid foods.....	737
Marketable milk.....	737
Range of foods examined.....	737
Resume of analyses.....	737
 Milk—	
Absurdity of English standard.....	740
Analysis of illegal.....	754
Average composition.....	739
Average composition per month—England.....	741
Average composition per month—St. Paul.....	741
Averages—misleading.....	741
Average solids of milk.....	740
Berne standard.....	739
Canada average.....	739
Dr. Wiley's average.....	739
Dr. Vieth's average.....	739
English standard.....	739
H Droop Richmond's average.....	742
Industrial milkman's record.....	740
Incongruity of double standard.....	739
Legal definition.....	740
Minnesota standard for fat.....	740
Minnesota standard for solids.....	739
New York average.....	739
Paris standard.....	738
Requisites of standard.....	739
State standards.....	738
Standard of composition.....	740
Utility of standards.....	739
Wisconsin average.....	
 Marketable Milk—	
Advantage of high standard.....	761
Bacteria in milk.....	756
Bacteria in sour milk and cream.....	756
Chemical antiseptics.....	759
City milk.....	755
Commercial value.....	760
Conditions governing preservation.....	758
Contamination through diseases in cow.....	755
Decomposition of.....	756
Double standard.....	761
Examination of market milk for acidity.....	757
Factory milk.....	755
Hygienic relations of milk.....	755
Lactic acid in sour milk.....	758
Minnesota standard satisfactory.....	761
Outside contamination.....	756
Preservation of milk.....	757
Progress in souring.....	758
Relative value plan.....	760
The dairy farm.....	759
Tuberculin test.....	760

Standard for Minnesota State Full Cream Cheese—	Page.
Additional evidence.....	767
A just standard.....	765
Analysis of market cheese.....	766
Basis for standard.....	763
Canadian investigation.....	768
Conclusions from data given.....	766
Confusion of names.....	764
Desirability of rich cheese.....	764
Experimental.....	766
Importance of high standard to cheese maker.....	764
Laws of other states.....	762
Legislation recommended in previous reports.....	762
New York investigation.....	767
Present Minnesota law.....	761
Present Minnesota standard.....	761
Quality of Minnesota factory milk.....	770
Recommendation of 50 per cent standard.....	770
Resume of facts presented in previous reports.....	765
Standard based on fat in milk.....	763
Standard based on fat in cheese.....	763
Standard based on ratio of fat to solids.....	763
Table.....	768
Table.....	769
Theoretical.....	765
Theoretical evidence.....	768
Determination of Fat in Cheese—	
Deductions.....	772
Description of methods.....	771
Importance of investigation.....	770
Methods experimented with.....	770
Table of results.....	771
Cheese Examined for Foreign Fat—	
Table.....	772
Lard—	
Table of inspection and analysis.....	774
Summary.....	772
Baking Powder—	
Action of yeast.....	778
Advantages of yeast.....	778
Adulteration and substitutes.....	784
Cream of tartar.....	784
Mono-calcium phosphate.....	784
Sulphate of lime bone goods.....	785
Leached goods.....	785
Aluminium.....	792
Alum phosphatic powders.....	783
Chemical advantage.....	784
Hygienic advantage.....	784
Culinary advantage.....	784
Alum powders.....	781
Residue.....	782
Alum powders.....	787
Available carbon dioxide.....	791
Bigelow's experiment.....	789
Chemical baking powders.....	779
Classification of.....	780
Cost of baking powders.....	785
Cream of tartar powders.....	787

	Page.
Baking Powder—Cont'd.	
Cream of tartar powders.....	780
Chemical reaction.....	781
Ideal cream of tartar powder.....	781
Products of action.....	781
Residue.....	779
Disadvantages of yeast.....	779
Douglish system.....	792
Excess of alkali.....	787
Hegner's experiment.....	778
Historical introduction.....	786
Hygienic considerations.....	779
Improvements in use of yeast.....	791
Laws.....	791
Law recommended.....	792
Lime sulphuric acid.....	791
Methods of analysis.....	787
Phosphate powders.....	782
Phosphate powders.....	782
Residue.....	783
Deterioration of phosphate powders.....	783
New style of container.....	792
Phosphoric acid.....	786
Relative strength.....	788
Solubility of aluminium hydroxide.....	794
Table I.....	795
Table II.....	795
Table III.....	779
Trade in baking powder.....	
 Infant and Invalid Foods—	
Analysis of asses' milk.....	800
Analysis of cows' milk.....	800
Analysis of goats' milk.....	799
Analysis of human milk.....	800
Analysis of mares' milk.....	800
Analysis of sheep's milk.....	800
Comparison of human and cow's milk.....	802
Condensed milk.....	801
Cow's milk for infant feeding.....	798
Death rate among wealthy.....	798
Death rate among poor.....	798
Death rate in artificially fed infants.....	797
Death rate in infants.....	807
Deficiency of fat in prepared foods.....	801
Dr. Winslow Anderson's recommendation.....	802
Humanized cow's milk.....	797
Improper nourishment.....	796
Meager amount of data.....	803
Milk.....	799
Mother's milk.....	799
Nature's food.....	796
Necessity of educational work.....	803
Nutritive ratio.....	802
Pasteurization.....	803
Prepared foods.....	802
Sterilization.....	803
Substitution.....	806
Table of analyses.....	804
Uselessness of starch as food for infants.....	

Invalid Foods—	Page.
Explanation of terms used in analysis.....	807
Extract of meat.....	807
Function of medicine.....	809
Phantom food.....	809
Requirements .....	807
Table.....	808
Use of table of analyses.....	809
Honey—	
Table of analyses.....	810
Vinegar—	
Class memorandum.....	812
Low wine vinegar low in acid.....	819
Standard low wine vinegar.....	816
Table of malt vinegar—standard.....	823
Table of cider vinegar low in acid.....	814
Table of miscellaneous vinegar.....	823
Table of misrepresented vinegar.....	819
Table of standard cider vinegar.....	812
PART IV.	
Report of E. B. Williams, cheese inspector.....	824-830
Butter and cheese at low prices.....	825
Cheese factories and creameries combined.....	827, 828
Cheese factories inspected 1895 and 1896.....	831
Condition of factories.....	827
National filled cheese law.....	826, 827
Quality of cheese.....	828, 829
Ripening of cheese.....	829, 830
Standard of cheese.....	825, 826
PART V.	
Report of Minneapolis office.....	832-852
Barn inspection for 1895.....	833-844
Barn inspection for 1896.....	844-851
Food inspection.....	851, 852
PART VI.	
Report of Duluth office.....	853-857
Report of barn inspection, 1896.....	854-857
Report of food inspection.....	853
Report of milk samples inspected.....	853
PART VII.	
Dairy and food laws of Minnesota.....	858-870
BIENNIAL REPORT OF THE ATTORNEY GENERAL.....	873-1082
Bank cases.....	888
Cases in United States supreme court.....	887
Civil cases in district court.....	878
Civil cases in supreme court.....	877
Criminal cases in district court.....	886
Criminal cases in supreme court.....	875
Duluth & Iron Range railroad.....	889
Letter of transmittal.....	875
Pine land cases.....	889
Recommendations.....	894
Section thirty case.....	890
State of Minnesota vs. Craig.....	891



## REPORTS OF COUNTY ATTORNEYS.

	1894.	1895.		1894.	1895.
Aitkin county.....	896	926	Mille Lacs county.....	912	943
Anoka county.....	896	926	Mower county.....	913	941
Becker county.....	897	928	Murray county.....	910	942
Benton county.....	898	928	Nicollet county.....	913	944
Big Stone county.....	897	927	Norman county.....	914	945
Blue Earth county.....	899	.....	Nobles county.....	914	945
Brown county.....	898	927	Olmsted county.....	915	946
Carlton county.....	899	929	Otter Tail county.....	914	945
Carver county.....	.....	930	Pine county.....	915	946
Chippewa county.....	901	931	Pipestone county.....	916	947
Chisago county.....	900	929	Polk county.....	915	947
Clay county.....	900	930	Pope county.....	.....	946
Cottonwood county.....	.....	931	Ramsey county.....	917	.....
Crow Wing county.....	901	932	Redwood county.....	.....	949
Dakota county.....	902	933	Rice county.....	916	948
Dodge county.....	902	932	Rock county.....	917	949
Faribault county.....	903	.....	Roseau county.....	.....	948
Fillmore county.....	903	933	Scott county.....	919	952
Goodhue county.....	904	934	Sherburne county.....	920	950
Grant county.....	904	934	Sibley county.....	920	951
Heenepin county.....	905	936	Stearns county.....	918	.....
Houston county.....	906	935	Steele county.....	919	.....
Hubbard county.....	906	935	Stevens county.....	920	950
Itasca county.....	907	937	St. Louis county.....	918	951
Isanti county.....	907	937	Swift county.....	921	950
Jackson county.....	908	938	Todd county.....	922	953
Kanabec county.....	909	938	Traverse county.....	921	952
Kandiyohi county.....	908	939	Wabasha county.....	925	.....
Lac qui Parle county.....	909	940	Wadena county.....	922	956
Lake county.....	910	940	Waseca county.....	925	954
Le Sueur county.....	.....	941	Washington county.....	923	955
Lincoln county.....	910	940	Watsonwan county.....	923	954
Lyon county.....	909	939	Wilkin county.....	922	953
Marshall county.....	911	943	Winona county.....	924	956
Martin county.....	911	.....	Wright county.....	924	955
McLeod county.....	911	944	Yellow Medicine county...	925	957
Mecker county.....	912	942			

## OPINIONS OF ATTORNEY GENERAL.

	Opinion No.	Page.
Building and Loan Associations—		
Admission fee.....	2	959
Certificate of stock.....	1	958
Contract.....	4	960
Excess dividend—Remedy.....	3	959
Caring for the Poor—		
Importing paupers.....	5	961
Residence of pauper.....	6	961
Counties—		
I.—MISCELLANEOUS.		
Allowance of claims.....	7	962
Change of boundary lines.....	9	964
County seat—Removal.....	11	965
Keeping prisoners.....	10	964
Legal notices.....	12	965
Organization.....	8	962



## Counties—Cont'd.

	Opinion. No.	Page.
II.—COUNTY ATTORNEY.		
Expenses.....	14	967
Vacancy.....	13	966
III.—COUNTY COMMISSIONERS.		
Abstracts.....	20	971
Authority—Highways.....	16	968
Authority to compromise judgment.....	15	967
Compensation.....	21, 22	962
Compensation in Blue Earth county.....	23	972
Contract for supplies.....	18	970
Removal of county seat.....	17	969
Unorganized—Power of commissioners.....	19	970
IV.—CLERK OF COURT.		
Clerk hire.....	24	973
Fees.....	25-27	974, 975
V.—COURT COMMISSIONER.		
Fees.....	29	975
Unorganized county.....	28	975
VI.—DISTRICT JUDGES.		
Compensation.....	30	976
VII.—SHERIFFS.		
Fees.....	31-33	977, 978
Residence.....	34	979
VII.—COUNTY SURVEYOR.		
County surveys.....	35	979
Corporations—		
Approval of articles by attorney general.....	37	980
Consolidation—Fees.....	36	980
Education and Schools—		
Admission—Portion of year.....	42	982
Apportionment.....	39	981
Bonds—Limitation of issue.....	62	993
Certificate.....	47	985
Compensation—Assistants to county superintendent.....	43	983
Evening schools—Admission of adults.....	56	990
High schools.....	63	994
Independent district—Hygiene.....	51	988
Independent district—Vocal music.....	41	982
Lord's Prayer.....	44	983
Normal schools.....	45	984
Permanent school fund.....	55	990
Petition—Amendment.....	57	991
Removal of incompetent teacher.....	58	991
Salary of superintendent.....	61	993
School buildings.....	46	984
School district.....	40	981
School district—Freeholder as petitioner.....	38	980
School district—Garnishee.....	48	985
Statute—Repeal—Examination of teachers.....	64	994
Taxation.....	60	992
Teaching in foreign language.....	52	989
Teaching of physiology.....	49	986
Temperance hygiene.....	50	987
Text-book fund.....	59	992
Women vote.....	53, 54	989

	Opinion No.	Page.
Elections—		
General election in townships.....	67	996
Member of legislature—Contest.....	65	995
Primary elections.....	66-68	996
Game and Fish Law—		
Disposition of fines.....	69	997
Legislative oversight—Hunting with dogs.....	70	997
Hospital for the Insane—		
Control of hospitals.....	78	1002
Commitment.....	75	1000
Custodial and medical relations.....	77	1001
Custody by relatives.....	73	999
Fees for commitment.....	76	1000
Fees of court commissioner.....	72	998
Fourth hospital for insane—Plans and specifications—		
Architect.....	71	998
Inebriates—Guardianship.....	74	999
Incompatibility—		
County commissioner—Appraiser of public lands.....	79	1004
Intoxicating Liquors—		
Government license.....	84	1006
Liquor licenses.....	81	1005
Local option.....	86	1007
Local option—Manufacturers.....	80	1004
No license.....	82	1006
Refundment.....	83	1006
Reinstating forfeited license.....	85	1007
Revocation of license.....	87	1008
Insurance —		
Accident insurance.....	98	1018
Automatic Sprinklers.....	88	1008
Contingent safety fund.....	97	1017
Contract.....	99	1019
Construction of law.....	100	1019
Construction of statute.....	90	1010
Foreign insurance company.....	96	1017
Retaliatory law.....	92	1012
Riders .....	93	1012
Rider—Co-insurance.....	89	1009
Rider—Pro rata clause.....	91	1011
Salvage corps.....	95	1015
Unauthorized foreign companies.....	94	1014
Legal Newspapers—		
Failure to deliver required number.....	102	1020
Omission on legal holiday.....	101	1020
Legislation—		
Appropriation—Drainage .....	104	1021
Classification.....	105	1023
School text-book fund.....	103	1020
Noxious Weed—		
Expenses—Weed agent.....	106	1024
Weed agent—Term—Railroad lands.....	107	1025

	Opinion. No.	Page.
Offices—		
Boiler inspector—reimbursement.....	118	1033
Court reporter—Compensation.....	112	1028
Dental examiners.....	108	1026
District judge.....	113	1028
Eligibility..	115	1030
Game and fish commission—Vacancy.....	117	1032
Railroad and warehouse commission.....	109	1026
Referee's fees.....	114	1029
Superintendent of schools.....	116	1032
Surveyor general—Fees.....	110, 111	1027
Public Buildings—		
State capitol—ownership of designs.....	119	1033
Public Health—		
Destruction of animals—Appraisal.....	120	1034
Health officer—Expenses.....	121	1035
Public lands—		
Grants—Selections.....	123	1037
Grant to Duluth & Iron Range Railroad Company.....	124	1039
Hastings & Dakota Railway grant.....	122	1035
Interest.....	125	1042
Sioux City & St. Paul grant.....	126	1042
Public Printing—		
Contract—State horticultural society.....	127	1043
Deputy state treasurer—Receiving bids.....	129	1045
Geological survey.....	128	1044
Railroad and Warehouse Commission—		
Gross earnings.....	130	1046
Removal of station.....	131	1047
Roads and Bridges—		
Bridges.....	133	1048
Description.....	134	1049
Town line roads.....	132	1048
State Board of Medical Examiners—		
Exempts.....	135	1049
State Prison—		
Breach of pardon.....	136	1050
Contract.....	137	1050
Term of sentence.....	138	1051
State Training School.....	139	1052
State Reformatory—		
Escape.....	140	1052
School for Feeble-minded—		
Residence.....	142	1053
Jurisdiction over inmate.....	141	1053
State Officers—		
Secretary of state—Census statistics—Publication.....	143	1054
State auditor's warrant.....	144	1054
Statute—		
Constitutionality.....	147	1056
Construction.....	145	1055
Construction—Organized county.....	146	1056

	Opinion No.	Page.
Taxation—		
Abatement.....	160	1064
Authority of state auditor.....	159	1063
Equalization.....	163	1065
Forfeited tax sale.....	157-162	1062, 1065
Gross earnings—Rents.....	151	1059
Listing by auditor.....	158	1063
Mining corporations.....	150	1058
Mortgages.....	156	1062
Notice—Repeal.....	149	1058
Parsonage and sheds for horses.....	154	1061
Personal property National building associations—Real estate Norwegian Young Men's Christian Association Minneapolis.....	155	1061
Publication—Description.....	161	1064
Refundment.....	148	1057
Road tax.....	153	1060
Seed grain.....	152	1060
Townships—		
Contagious diseases—Expenses.....	169	1067
Ditches—Expenses.....	165	1066
Fees.....	167	1067
Formation—Indebtedness.....	170	1068
Herd law.....	171	1069
Meetings of township board.....	166	1066
Supervisors—Fees.....	168	1067
Town clerk—Compensation.....	164	1066
Villages—		
Fire department.....	172	1070
Roads.....	173	1070
Miscellaneous—		
Convicts as witnesses.....	177	1073
Custodian of bills and statements.....	183	1078
Financial statement.....	179	1073
Firemen's relief association.....	182	1076
Labor bureaus.....	175	1072
Logs—Scaling.....	174	1071
Public parks.....	178	1073
Quo warranto—State boiler inspector.....	181	1075
Steam boilers—Inspection.....	176	1072
Storage companies.....	180	1074



	Page
SECOND ANNUAL REPORT OF THE CHIEF FIRE WARDEN...	545-656
Adirondack park, enlargement of.....	655
Agricultural experiment station, bulletin of.....	643
American Forestry Association on the fire warden law.....	648
Annual reports of fire wardens, extracts from.....	593-609
Annual town meetings, reading warden law at.....	554
Ayres, H. B., opinion on regrowth of pine.....	623, 643
Baden, forestry of.....	632
Bavaria, forestry of.....	633
Carlton county, cut-over lands in, visited.....	623
Correspondence with fire wardens.....	550-554
Cross, J. N., his project on cut-over lands.....	647
Cut-over lands, rate of increase of timber on.....	643
Dangerous season of 1896.....	547
Donations to the state of cut-over lands, project for.....	646
Educational work under fire warden law.....	654
Facts in regard to forest benefits.....	654
Farms, value increased by timber.....	605
Farmers Institute, speakers to advocate forestry.....	654
Fernow, B. E., quoted on the fire warden law.....	648
Fire warden law, effectiveness of.....	653
Fire wardens—	
Reports of fires, 1896.....	550
Appointed without reference to politics.....	555
Instructions to.....	555
Reports of forest fires.....	562
Reports of prairie fires.....	576
Forest and prairie fires, 1896.....	558, 589
Summary of.....	559, 573
Principal causes of.....	595
Damage by, previous to 1895.....	609
Forest preservation, popular interest in.....	599, 632
Forest Reserve Arrears bill.....	646
Forestry in Baden.....	632
Bavaria.....	633
Norway.....	636
Sweden.....	639
Frey, H. B., statement of, on logging.....	629
Green, S. B., bulletin of, on cut-over lands.....	643
Income, net, from forests in Europe.....	332-641
Itasca park, description of.....	655
Keffer, Charles A., his opinion on the fire warden law.....	651
Logging industry, lumbermen's opinions on.....	622
Lumbermen, opinions of, on pine logging.....	622-631
McNulta, John, opinion on regrowth of pine.....	623
Merrill, M. D., statement of, on logging.....	624
Minnesota fire warden law, opinions on.....	648-652
Mississippi Valley Lumberman, on the fire warden law.....	650
Mitchell & McClure, their camp visited.....	623
New Hampshire, profit from its scenery.....	655
New settlements, progress of.....	609
New York state, appropriation to buy additional forests.....	654
Northwestern Lumberman, on the fire warden law.....	649
Norway, forestry of.....	636
Ontario, its park of a million acres.....	655
Ontonagon, Mich., great forest fire at.....	548, 653
Paine, J. M., his estimate of standing pine.....	611
Patrols.....	653
Pine, increase in growth of.....	605
Land that is only fit for bearing.....	610
Popular interest in forest preservation.....	599
Precautions against fires.....	554
Preliminary report on forest fires in 1896.....	549-554



	Page
Public sentiment.....	654
Railroad locomotives, fires set by. ....	656
Manager, circular to.....	657
Roads, passable wagon, miles of.....	610
Scenery, forest, profit of.....	655
St. John, Edwin, statement of, on logging.....	626
Shevlin-Carpenter Co., statement of, on logging.....	628
Slashings, example of cheap burning of.....	623
Smith, C. A., his estimate of standing pine.....	611
Summary of forest and prairie fires.....	559, 573
Sweden, forestry of.....	639
Timber, standing in Minnesota, amount of.....	610-621
Clean cutting of, now practiced.....	611
Wurtemberg, forestry of.....	641

# FIFTH BIENNIAL REPORT

OF THE

# BUREAU OF LABOR

OF THE

STATE OF MINNESOTA.

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1895-1896.

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L. G. POWERS, COMMISSIONER OF LABOR.

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ST. PAUL:  
THE PIONEER PRESS COMPANY,  
STATE PRINTERS  
1896.

STATE OF MINNESOTA,  
OFFICE OF BUREAU OF LABOR, }  
ST. PAUL, MINN., Oct. 10, 1896. }

*To the Honorable the Senators and Representatives of the Legislature of  
the State of Minnesota.*

GENTLEMEN: I have the honor to transmit herewith the Fifth  
Biennial Report of the Bureau of Labor.

Very respectfully yours,

L. G. POWERS,  
*Commissioner of Labor.*

## CONTENTS.

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	Page.
Letter of Transmittal.....	18
Table of Contents.....	19
Law Governing the Bureau.....	22
Introduction .....	30
PART I. Modern Variation in the Purchasing Power of Gold.	
CHAPTER I. Introductory.....	25
CHAPTER II. Indian Corn.....	55
CHAPTER III. Oats.....	94
CHAPTER IV. Wheat.....	121
CHAPTER V. Corn, Oats, and Wheat in Combination.....	189
CHAPTER VI. Barley.....	217
CHAPTER VII. Rye.....	238
CHAPTER VIII. Buckwheat.....	262
CHAPTER IX. Corn, Oats, Wheat, Barley, Rye, and Buckwheat in Combination .....	283
CHAPTER X. Potatoes.....	310
CHAPTER XI. Hay.....	332
CHAPTER XII. Tobacco.....	354
CHAPTER XIII. The Nine Crops of Corn, Oats, Wheat, Barley, Rye, Buckwheat, Potatoes, Hay, and Tobacco in Combination.....	372
CHAPTER XIV. Cotton and Its Combinations With the Nine Crops.....	406
CHAPTER XV. Live Stock for the Ten Mississippi Valley States.....	426
CHAPTER XVI. Live Stock for Seven Selected States.....	464
CHAPTER XVII. Live Stock for Seventeen Selected States and the United States .....	488
CHAPTER XVIII. Summary for all Crops and Live Stock.....	507
Index for Part I.....	541
Errata .....	539

For index to subjects in Part II. relating to Factory Inspection, see end of that part.

## INTRODUCTION.

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In presenting this report of the Bureau of Labor, attention is briefly called to the law governing the bureau and the changes that have been made in the same since the creation of the bureau. The legislature of 1887, by chapter 115 of the General Laws of that year, established a bureau of labor statistics. Its chief and only duties were to gather, compile, and publish statistics relating to wages, the condition of labor and other social, economical, educational, and financial subjects. Under that law and its amendments made by the succeeding legislature three biennial reports were issued, those of 1888, 1890, and 1892. The legislature of 1893 greatly enlarged the scope of duties imposed upon the bureau by the earlier act. The name of the bureau was changed from Bureau of Labor Statistics to Bureau of Labor. In addition to the duties of gathering and compiling and publishing statistics as directed by the earlier law, the bureau was, after 1893, directed to enforce a large number of laws regarding factories, railroads, child labor, and for the protection of the working classes. The work of the department thereafter divides itself into two distinctly different classes, that of statistics and of factory inspection or law enforcement. Both classes of work require reports, but the two reports appeal to and are read by different people. The report of the bureau for 1894 was, therefore, printed and circulated in two separate parts, excepting the small number that was designed for public libraries and institutions desiring to maintain complete files of these and similar reports. This report for 1896 is printed in the same manner.

This, the first part of the second report of the Bureau of Labor or the fifth report from the establishment of the Bureau of Labor Statistics, contains a compilation of the statistics finally completed by the department in the two years ending Dec. 31, 1896. Mention should be made of the fact, however, that the department during the last two years has gathered a large mass of data relating to taxation in Minnesota and to mortgage indebtedness, mortgage foreclosures and a number of other subjects of vital importance in



the domain of labor and public economy. The investigations of which the gathering of this data is a part will be continued, and the facts obtained in due time given to the public.

- The tabulation of the data of this report has involved a vast amount of labor, and has greatly taxed the limited resources at the command of the bureau to bring it out on time. This fact has also caused the printing of the report to begin before the work of tabulation had been completed. As a result a few errors were included in the earlier tables and certain imperfections of treatment introduced into this work that otherwise would have been avoided. The errors referred to are noted in the Errata at the close of Chapter XVIII.

During the past two years applications in greatly increased numbers have been made to the bureau by men in every walk of life, laboring people, railroad officials, business and professional men, and men of all political parties, for information of a statistical nature. Mention is made of this fact to call attention to the increasing facilities of the bureau in the way of a library of statistical publications to answer all such questions. The bureau can be of greater assistance to men of all classes and professions than it has been in furnishing exact information of a statistical nature for all desiring to use the same. It is hoped by those in charge of the bureau that the general public will avail themselves of the assistance of the department to an increasing extent, and thus the growth of this part of the bureau's work will continue to develop in the next few years as it has in the past four years.

It is with pleasure that I acknowledge my appreciation of the efficient assistance and coöperation in all the work of the bureau of the assistant commissioner of labor, Mr. Walter A. Hammond. His practical knowledge of many questions concerning which the bureau is constantly called upon to act has been of great assistance to the commissioner and of service to the state. The hearty personal thanks of myself are due to and are hereby tendered to all the other officers and employes of the department—Mr. Frank J. Casserly, factory inspector; Mr. E. B. Mayo, and Mr. Alfred McCallum, assistant factory inspectors; and Mr. Henry Ekman and Mr. James Smith, the two deputies in the department, giving their whole time to the collection and compilation of statistics.

L. G. POWERS,  
Commissioner of Labor.

# LAW GOVERNING THE BUREAU OF LABOR.

(Chapter 6.—H. F. 426, General Laws of 1893.)

*AN ACT creating a Bureau of Labor, Defining its Duties and Appropriating Money for its Maintenance.*

(Section in Revised Statutes 469.) Section 1. A commissioner of labor, appointed by the governor, and an assistant commissioner and a factory inspector, appointed by the commissioner, shall constitute a Bureau of Labor. The present commissioner of labor statistics shall act as commissioner of labor until the expiration of his term of office in January, 1895. At that time and thereafter biennially, on the first Monday in January, the governor, with the advice and consent of the senate, shall appoint a suitable person to act as commissioner of labor, with headquarters at the capitol, who shall hold his office until his successor has been appointed and qualified.

(470.) Sec. 2. It shall be the duty of the officers and employes of the said bureau to cause to be enforced all laws regulating the employment of children, minors, and women; all laws established for the protection of the health, lives and limbs of operators in workshops and factories, on railroads and in other places, and all laws enacted for the protection of the working classes, including chapter two hundred and five of the General Laws of 1885, chapters ten and sixteen of the General Laws of 1889, chapter seventeen of the General Laws of 1891, laws declaring it a misdemeanor on the part of employers to require as a condition of employment the surrender of any right of citizenship, laws regulating and prescribing the qualifications of persons in trades and handicrafts, and similar laws now in force or hereafter to be enacted. It shall also be the duty of the officers and employes of the bureau to collect, assort, arrange and present, in biennial reports to the legislature, on or before the first Monday in January, statistical details relating to all departments of labor in the state; to the subjects of co-operation, strikes or other labor difficulties; to trade unions and other labor organizations and their effect upon labor and capital; and to such other matters relating to the commercial, industrial, social, educational, moral, and sanitary conditions of the laboring classes, and the permanent prosperity of the respective industries of the state as the bureau may be able to gather.

In its biennial reports the bureau shall also give an account of all proceedings of its officers and employes which have been taken in accordance with the provisions of this act or of any of the other acts herein referred to, including a statement of all violations of law which have been observed and the proceedings under the same, and shall join with such account such remarks, suggestions and recommendations as the commissioner may deem necessary.

(471.) Sec. 3. It shall be the duty of every owner, operator, or manager of every factory, workshop, mine, or other establish-

ment where labor is employed, to make to the bureau, upon blanks furnished by said bureau, such reports and returns as the said bureau may require for the purpose of compiling such labor statistics as are authorized by this act, and the owner or business manager shall make such reports and returns within the time prescribed therefor by the commissioner of labor, and shall certify to the correctness of the same.

In the reports of said bureau no use shall be made of names of individuals, firms, or corporations supplying the information called for by this section, such information being deemed confidential and not for the purpose of disclosing personal affairs, and any officer, agent, or employe of said bureau violating this provision shall forfeit a sum not exceeding five hundred dollars or be imprisoned for not more than one year.

(472.) Sec. 4. The commissioner, or any officer of the bureau of labor shall have the power to issue subpoenas, administer oaths and take testimony in all matters relating to the duties herein required by said bureau, such testimony to be taken in some suitable place in the vicinity to which testimony is applicable. Witnesses subpoenaed and testifying before any officer of the said bureau shall be paid the same fees as witness before a district court, such payment to be made from the contingent fund of the bureau. Any person duly subpoenaed under the provisions of this section, who shall willfully neglect or refuse to attend or testify at the time and place named in the subpoena, shall be guilty of misdemeanor, and, upon conviction thereof, before any court of competent jurisdiction, may be punished by a fine not exceeding fifty dollars, or by imprisonment in the county jail not exceeding thirty days; provided, however, that no witness shall be compelled to go outside the county in which he resides to testify.

(473.) Sec. 5. The commissioner of labor or any officer or employe of the bureau of labor shall have power to enter any factory or mill, workshop or public or private works when the same is open or in operation for the purpose of gathering facts and statistics such as are contemplated by this act, and to examine into the methods of protection from danger to employes and the sanitary condition in and around such buildings and places and make a record thereof, and any owner or occupant of said factory or mill, workshop, or public or private works, or his agent or agents, who shall refuse to allow an officer or employe of the said bureau to so enter, shall be deemed guilty of misdemeanor, and, upon conviction thereof, before any court of competent jurisdiction, shall be punished by a fine not to exceed one hundred dollars, or be imprisoned in the county jail not to exceed ninety days. The expressions "factory or mill," "workshop," and "public or private works," used in this act shall have the same meanings defined for them, respectively, in an act entitled, "An act providing for the protection of employes," approved March 30, 1893.

(474.) Sec. 6. No report or return made to the said bureau in accordance with the provisions of this act, and no schedule, record or documents gathered or returned by its officers or employes, shall



be destroyed within two years of the receipt or collection thereof, such reports, schedules, and documents being declared public documents. At the expiration of the period of two years above referred to in this section, all records, schedules, and papers accumulating in the said bureau that may be considered of no value by the commissioner may be destroyed, provided, the authority of the governor and the senate be first obtained for such destruction.

(475.) Sec. 7. In addition to the assistant commissioner and factory inspector, provided by section one of this act, the commissioner of labor shall appoint two deputies and two assistant factory inspectors, one of whom shall act as inspector of railways. He may also employ such other assistants and incur such other expense, not exceeding three thousand dollars a year, as may be necessary in the discharge of the official duties of said bureau; such other assistants shall be paid for the service rendered such compensation as the commissioner of labor may deem proper, but no such assistants shall be paid more than four dollars per day in addition to necessary traveling expenses.

(476.) Sec. 8. The biennial reports of the bureau of labor, provided for by section two of this act, shall be printed in the same manner and under the same regulations as the reports of the executive officers of the state; provided, that not less than one thousand nor more than three thousand copies of the reports shall be distributed, as the judgment of the commissioner may deem best. The blanks and other stationery required by the bureau of labor in accordance with the provisions of this act shall be furnished by the secretary of state and paid for from the printing fund of the state.

(477.) Sec. 9. The compensation of said bureau shall be two thousand five hundred dollars annual salary for the commissioner, fifteen hundred dollars annual salary for the assistant commissioner, twelve hundred dollars annual salary for the factory inspector, and one thousand dollars annual salary each for the two deputies and the two assistant factory inspectors, and a sum not exceeding three thousand dollars per annum shall be allowed for the necessary traveling and incidental expenses of the bureau; provided, that only those persons who possess a practical knowledge of and experience in the work and duties required of them under the provisions of this and other acts shall be appointed factory inspectors.

(478.) Sec. 10. There is hereby annually appropriated out of any money in the treasury, not otherwise appropriated, the sum of twelve thousand two hundred dollars, or as much thereof as may be necessary to carry out the provisions of this act.

(479.) Sec. 11. Chapter one hundred and fifteen of the General Laws of 1887, and all amendments thereto, and all other acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

Sec. 12. This act shall take effect and be in force from and after its passage.

Approved April 19, 1893.



## PART I.

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### MODERN VARIATIONS IN THE PURCHASING POWER OF GOLD.

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#### AN INVESTIGATION INTO THE EXTENT AND CAUSES OF RECENT PRICE VARIATIONS.

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#### CHAPTER I.

---

#### INTRODUCTORY.

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#### THE RELATION OF PRICE VARIATIONS TO TARIFF AND CURRENCY LEGIS- LATION.

The subject of price changes has of recent years assumed an importance in the public mind never before witnessed. Statesmen, students of political science, politicians, and the millions are all eagerly inquiring after the extent of price changes and their causes. Those changes are seen to have a possible relation to tariff and financial legislation in all quarters of the globe. A few persons may possibly be found who are willing to distort facts or place them in wrong relations, to bolster up their theories concerning this legislation, but the greater number simply desire to know what is the truth concerning them. In this desire they give testimony to the existence of a popular conviction that legislation concerning tariff, finance, and all kindred subjects must ultimately conform to facts relating thereto. Bureaus of labor were called into existence to investigate and present to the public, in orderly form, all ascertainable data relating to the various economic and social questions of general interest. Because of the wide-spread interest in this subject of recent price changes, the Minnesota Bureau of

Labor has for over two years been giving attention thereto. The results attained are herewith presented to the public in this Part I of the Fifth Biennial Report. To properly set forth the principles on which this investigation by the Minnesota Bureau has been conducted, and thus exhibit the results presented, a brief statement will be given at the outset of some of the general causes that affect prices, or the purchasing power of money. There will also be given some definitions of the fundamental terms of political science as the same are used in this report. Attention will first be directed to

#### THE THREE GENERAL CAUSES AFFECTING PRICES.

The three general causes in the modern world affecting prices, and thus also modifying and determining the purchasing power of money and of gold, its standard or common denominator of value, are these:

1. The varying cost of producing and transporting to the markets of the world the articles of exchange.

2. Changes in the supply of and demand for those articles; and

3. Changes in the relative supply of gold and silver, and the amount of those metals contained in or represented by the unit of exchange.

#### CHANGES IN COST OF PRODUCTION AND TRANSPORTATION A MODERN FACTOR DETERMINING PRICES.

In practical life it may be difficult to separate clearly the first two of these factors or causes. This follows from the fact that changing cost of production or transportation are in reality factors affecting the demand and supply. The classification here employed separates them, however, and for this reason: Change in the cost of production or transportation is an essentially modern factor affecting prices. Prof. James E. Thorold Rogers, in the *Economic Interpretation of History*, page 255, says: "There is very little evidence that in any department of human industry improvements in the process of production diminishing cost are traceable; for centuries, abundant evidence shows that no such improvements were made." Later, in the same work, Professor Rogers mentions two articles whose prices were in the past centuries lessened by decreasing cost of production. They were glass and paper. The labor cost of producing all other articles was essentially the same in 1750 as in the days of William the Norman.

The condition of industrial affairs in the nineteenth century is altogether different. In this century invention and discovery have followed one another in rapid succession. In most lines of human industry machines enable one person to do the work formerly re-

quiring many. This reduction in the labor required in the production of most articles lessens their cost of production and their selling price. It thus increases for those articles the purchasing power of the precious metals, or as that fact is technically expressed, it causes gold and silver to appreciate in purchasing power with reference to those articles. This lessened cost of production is found on the farm as the result of the use of labor-saving machinery, and also where by the skillful breeding and managing of animals, the agriculturists are able to shorten the period of feeding and bring a fattened steer into the market at three years of age and a hog at fourteen months, where their predecessors required six years for the first and two years for the latter. New processes enable the manufacturer to utilize materials once valueless. Thus, iron ores containing phosphorus, arsenic, and sulphur were of no economical value until the discovery of the Bessemer process of making steel. More changes in methods and cost of transportation by land and by water are now made every year than were realized from the days of Julius Cæsar to Queen Elizabeth. All changes in the cost of production, however brought about, and all this modern decrease in the cost of transportation, affect prices and so the purchasing power of money.

#### EFFECT OF VARYING SUPPLY AND DEMAND UPON THE PURCHASING POWER OF MONEY.

Not only are prices affected by these modern changes in the cost of production and transportation, but they are also modified by the varying supply and demand of these articles to be sold. This fact is one of the commonplaces of the market and of political science. And yet commonplace as it is, its converse is not so readily perceived. Few persons ever stop to think that when in any given year the price of potatoes is doubled by a short crop, that for that staple the purchasing power of gold, or money, is for the time being depreciated one-half. So, also, when potatoes fall in selling price by reason of oversupply, as they did in 1895, that fall in selling price records an appreciation or rise in the purchasing price of gold or money with reference to potatoes. It is the same with all the thousand and one other articles of commerce.

#### CHANGES IN PRICES BY REASON OF CHANGES IN THE SUPPLY OF THE PRECIOUS METALS.

But just as the purchasing power of gold or money may rise or fall, or to use the technical expression, appreciate or depreciate by a change in the supply of and demand for the articles of commerce, so the selling price of those articles may rise or fall by a change in the supply of gold and money or by the quantity of the

precious metals included in the unit of exchange. When a single article, like potatoes, or hay, rises or falls in price through changing supply or demand, or when one article like steel rails falls by reason of improved and cheaper methods of production, no uncertainty or doubt arises concerning the same. The change in price or in the purchasing power of money over the given article by every one is assigned to its true cause. It is otherwise when there is a change in the selling price of the greater proportion of the articles of daily use. It is then difficult to measure and determine the factors contributing to a universal change of prices. Speaking of such a general rise or fall in prices, Prof. James E. Thorold Rogers says: "When the facts come before them and are examined and admitted, the first impulse, even in those who should be better informed, is to assign high and low prices to the excess and defect of the precious metals. In an age when no substitutes for money" (checks, drafts, etc.) "had been discovered, and no efficiency of the precious metals in the operation of exchange had been dreamed of, the plenty or scarcity of money had a far more direct effect on prices than it has in recent times." (*Economic Interpretation of History*, page 257.)

DIFFICULTY OF ASCERTAINING THE EFFECT OF CHANGES IN THE SUPPLY  
OF GOLD AND SILVER UPON PRICES.

But while the plenty or scarcity of money formerly had greater direct effect upon prices than now, it is difficult for the historian or economist accurately, or even approximately, to measure or determine in most cases the influence of that plenty or scarcity upon the purchasing power of money; or what is the same thing, its relation to the rise or fall of prices. Thus, between 1541 and 1582 the sovereigns of England reduced the silver in the coined pound of exchange, and from 1583 to 1642 the supply of precious metals in that country was greatly increased by the floods of silver that reached it from the mines of Mexico and Peru. Before 1540 the average price of wheat for 280 years had been not far from eighteen cents a bushel. A century later it had so risen that from 1650 to 1660 it was \$1.34 a bushel, or seven and a half times as great. In the year 1661 it was \$2.12 a bushel, or nearly twelve times its earlier average in preceding centuries. But not all of this advance was due to the debasement of the currency and the flood of silver from the new world. The short supply of wheat in the year 1661 greatly enhanced its price, and hence we find with the passage of time a fall, until in 1682 the price was only \$1.31 per bushel. Attention is called to these facts of past price changes to show how difficult it is to separate the price movements due to the supply of the



precious metals and other currency changes from those which result from wholly different causes. The price changes of the past were very simple in their nature when compared with those of the present. They were unmodified by any of the thousand and one factors due to changes in cost of production and transportation which the student must take into consideration in investigating the causes of modern price movements.

TENDENCY TO OVERESTIMATE THE EFFECT OF GOLD AND SILVER SUPPLY  
UPON PRICES.

It is very easy to have a ready made theory or explanation of all price movements. It is difficult to investigate, weigh, and measure the varying effect of changed cost of production and transportation and alterations in the supply and demand for the various articles of commerce. Hence the disposition to place a greater stress upon and assign an undue importance to changes in the supply of gold and silver in establishing prices. This disposition is not a recent one. It has manifested itself for many generations. In the earlier part of this century we find this use of a ready theory to explain the enormous rise of prices that accompanied the Napoleonic wars in Europe, suspension of specie payments, and the shortage of crops in England and other countries, and to account for the decline that took place between 1818 and 1849. Mr. Tooke in his *History of Prices* gave great attention to showing how this theory of the changing supply of gold and silver had been overworked. His monumental work takes the position that in the tremendous price variations from 1790 to his day there could be found no effect of any change in the supply of the precious metals. Other careful writers have, however, disagreed with Mr. Tooke upon this point, and yet Professor Jevons in 1865, in reviewing Mr. Tooke's work, though he differed from him, says: "I cannot too fully concur with Mr. Tooke's protest against attributing every evil to the currency which \* \* \* does not deserve to be made the scapegoat it long has been." (*Journal of Royal Statistical Society* 1865, page 302.)

The extent of price movements reviewed by Mr. Tooke and which Professor Jevons had in mind when he wrote the above extract, can be seen when it is noted that it included a fall, as stated by Professor Jevons on the same page with the extract, as follows: "Between 1809 and 1849 prices fell in the ratio of 100 to 41. This was over three times as great relatively as any decline that has taken place since 1870. If this tremendous decline and the rise, equally great, that preceded it from 1790 to 1809, can be explained

without supposing the influence of any change in the supply of the precious metals, there is raised a strong probability that recent price changes have no relation to the supply of or legislation concerning gold or silver or both of these precious metals.

Attention is called to these past price movements and the comments of such writers as Tooke and Jevons to show how hard it has been for the best of minds to measure the varying factors affecting prices and determine definitely whether these price movements were caused by currency changes or by other factors. The uncertainty that has always existed with reference to this subject of the probable effect of currency changes in modifying prices arises from the difficulty that has been at all times experienced in ascertaining or measuring, even approximately, the effect of varying supply and demand, good and bad harvests, and in recent years the effect of changes in the cost of production and transportation. So great is this difficulty that, while since 1870 the world has seen many painstaking, valuable, and trustworthy statistical studies of price movements, none of these studies have attempted by the statistical method to ascertain exactly the effect of invention and discovery, the changes in cost of production and transportation, upon prices. Those recent statistical studies into price movements have paid but little attention to a consideration of varying supply and demand in producing those price movements whose extent they have sought to measure. To measure that extent is a necessary step in securing an answer to the question, What causes modern price variation? Mr. Augustus Sauerbeck led the way in this investigation by his really valuable study, begun in 1885 and continued down to the present time. Other investigators have taken up the subject, but largely on the lines laid down by Mr. Sauerbeck. But unless the statistical method of study can be safely and trustworthily pushed further into the solution of the problem of recent price movements, the world will have no valid answer to the inquiry, Have these recent price changes been caused, in part or wholly, by the legislation concerning silver as money in 1873, and since that year?

LIMITATION OF RECENT PRICE STATISTICS FOR THROWING LIGHT UPON  
THE SILVER QUESTION.

Here are price movements in our day including three possible producing factors, already mentioned: (1) Varying cost of production and transportation, results of modern inventions, discovery and progress in effecting price changes; (2) Changing supply and demand; and (3) laws affecting silver and the

changed supply of the precious metals available as money. So long as either the first or the second of these factors is undetermined by the statistical method, our statistics throw absolutely no light upon the disputed subject of the third. Here is the statistical gulf yet to be bridged. Engineers might lay the track on both sides of Niagara river from Buffalo to Montreal, but that track for purposes of commerce between the two cities is absolutely worthless until or unless the two sections of track are connected by a bridge across the gulf of the Niagara river. So, until a bridge is thrown across this statistical gulf, until we have definite statistical measures for one or more articles or groups of articles of modern commerce, of the effect of varying supply and demand and of changed cost of production and transportation, we cannot legitimately or successfully use our statistics of prices for the solution of our vexed silver problem.

**THE ONLY METHOD OF ASCERTAINING THE EFFECT OF MODERN SILVER  
LEGISLATION UPON PRICES.**

In this connection it should be mentioned that it is not necessary to measure the influence of these two factors for all articles. If we can ascertain statistically the exact effect of changed supply and demand and of varying cost of production and transportation upon a single article, we can solve the problem. We can, for the article or group of articles investigated, eliminate the factors named, and the price movement that remains will measure the effect of currency changes, including that of the world's silver legislation of 1873 and since that year.

It is with this apprehension of the problem that the investigation whose results are here presented was undertaken. That investigation seeks to ascertain, as accurately as possible, for American agriculture, the effect of varying supply and demand and changes in the methods of production and transportation upon prices, and thus build the bridge that will enable us to utilize all our facts about general price movements to an orderly and systematic solution by the statistical methods of our vexed modern silver question.

**THE LAW GOVERNING THE EFFECT OF CHANGING SUPPLY AND DEMAND  
UPON PRICES.**

The question of varying supply and demand and their relation to price changes has been investigated by many persons. One of the first who by his studies has thrown much light upon this subject was Gregory King, who lived and labored in England about



two hundred years ago. Summing up the effect of changing supply before the advent of modern railways carrying crops from one country to others, he says:

"We take it, a defect in the harvest may raise the price of corn in the following proportion:

One-tenth defect, raises the price three-tenths above the common value.

Two-tenths defect, raises the price eight-tenths above the common value.

Three-tenths defect, raises the price sixteen-tenths above the common value.

Four-tenths defect, raises the price twenty-eight-tenths above the common value.

Five-tenths defect, raises the price forty-five-tenths above the common value.

At the time in which Gregory King lived and summed up the effects of defects of harvest, as above, the varying crop returns of good and bad harvests were the main, if not the only ordinary, factors affecting supply of agricultural products, and hence the only factors determining prices, under what we now speak of as varying supply and demand. The defect in harvest measured thus a decreased supply, and the excess of a good harvest above the normal measured an increased supply which thereby resulted. In modern times, when one section of a nation is joined by railroads and cheap methods of transportation to all other sections and to all lands on the globe, it is not so easy to determine the available supply determining prices. Of commodities, such as wheat or corn, which are carried by rail from one section of the world to another, no one ever chronicles in modern times such extremes of price advances as is called for by King's law, and no excessive harvest records a decrease of price called for by this law. It is otherwise with potatoes, in such seasons as that of 1895, when there is an excess of the crop in all parts of the Union and no large demand for foreign shipment. It is worth while to state the change of prices to be expected under King's law, calling the supply of an ordinary year 100 and the price that year 100. The price would vary as follows:

With a supply equal to 200, the price would be.....	020
With a supply equal to 167, the price would be.....	27
With a supply equal to 143, the price would be.....	36
With a supply equal to 120, the price would be.....	55
With a supply equal to 111, the price would be.....	67
With a supply equal to 100, the price would be.....	100
With a supply equal to 90, the price would be.....	130
With a supply equal to 80, the price would be.....	180
With a supply equal to 70, the price would be.....	260
With a supply equal to 60, the price would be.....	380
With a supply equal to 50, the price would be.....	550



FACTS AND NOT THEORIES SHOULD BE THE ONLY GUIDE IN THIS STUDY  
OF PRICES AND THEIR CAUSES.

Prof. James E. Thorold Rogers of the University of Oxford, England, has studied this subject of prices from its statistical side as well as from its theoretical side. In his *Economic Interpretation of History* he sets forth the need of exact facts in this domain of political science. At a time when so much discussion of the silver question is based upon abstract theories of money and the possible effect of various laws upon prices, these words of Professor Rogers, written before the discussion, are pertinent. On pages 250 to 252 he says:

"And here I may observe: (1) That there is no part of political economy in which the metaphysical or psychological method which you get up in your text-books is more misleading and delusive than it is on this subject, where the only safe course is to collect and estimate facts; and (2) that variations of high and low prices, which a century or more ago would have excited little attention and caused little alarm, in our day, when production and trade are so sensitive and so complicated, rouse the gravest apprehensions and exercise the attention of the most laborious and acute investigators into economical phenomena and economical agencies.

"Now there is one law of prices which you must know and understand before you can make the least progress in interpreting the simplest problem. It is known to some economists (I do not say all, for it is most unaccountably neglected or obscured in most treatises on the subject) as Gregory King's law. Gregory King was Lancaster herald in the latter part of the seventeenth century. Struck, as I do not doubt, with the extraordinary fluctuations of price, particularly in the price of wheat, which characterized the seventeenth century, and being a man of really statistical mind—that is, one able not only to collect figures but to interpret related figures,  
\* \* \* I have referred to it, and from this (law) King draws some highly practical conclusions from the free trade practices of the Dutch. It will be observed that King merely takes the price of corn, and that though he gives the proportion in an arithmetical form, he intends to imply no more than a principle, which experience may modify. Let me try to draw out, in the form of an economical rule or rules, the important canon of prices which was suggested two centuries ago, as I have seen it verified in the long research which I have given to the subject.

"1. The price of any article in demand, but at present in defect, rises in price by a different ratio from that indicated by the ascertained amount of the deficiency; and *e converso*, the price of any

article in demand, but at present in excess, falls in price by a different ratio from that indicated by the ascertained amount of the oversupply. By the expression 'ascertained amount,' I do not intend that the quantity shall be exactly measured. It is sufficient for the illustration of the first rule that it should be a sufficiently apprehended fact.

"2. The operation of the above law is always most dominant in articles of prime necessity, in which no notable economy can be made without suffering on the part of the people when supply is short, and no notable increase of consumption can be expected when the quantity is in excess of supply. If the article is relatively perishable, the phenomena increase in intensity on either side. This law or rule is not unlike Mr. Mill's principal law of values, but is more comprehensive.

"3. If in the scarcity or excessive plenty which prevails, as the case may be, there are several kinds of the same article, which ordinarily stand in a certain ratio to each other, and can be used interchangeably, the rise of price is greatest, in the event of a scarcity, in what has been heretofore the cheapest form; and conversely, in a time of oversupply the greatest fall is in what has hitherto been the dearest. This rule will require a little explanation. Roughly speaking, under ordinary circumstances, wheat, barley, and oats stand in the ratio 100, 73, and 50. Now in times of scarcity, 73 and 50 will rise more than 100 does, and if there be a fall in prices, owing to excessive supply, 100 will fall more than 73 and 50 do. This rule is of the greatest importance in practice, and in a rough manner is seen, though none too clearly, by practical men of business.

"4. If the articles in question are more or less of voluntary or optional demand, and the supply be in excess, prices tend to fall to money values which come very near the margin indicated by the present cost of production; but if the demand be in excess, profits rise considerably, and production and trade are active. I state this law, which is accurate enough when other prices are nominal, but is apt to be powerfully affected under the pressure of such exceptional circumstances as I shall have to refer to hereafter. If the use is entirely voluntary, the phenomena are intensified; if the option is exercised in the direction of a practicable economy of use, they are less powerfully exhibited.

"5. High prices in articles of necessary use consequent upon scarcity, natural or artificial, diminish the purchasing power of wages, and do not increase the amount of employment. High prices consequent on demand in voluntary articles which can be

increased indefinitely increase profits and increase wages. Low prices in articles of voluntary use do not, especially when labor or employment is greatly distributed, lower wages, so long as the producer does not or cannot diminish the output. If the demand for labor is urgent, and the supply is scarce, King's law applies to labor as fully as to any commodity. The working of this law is exceedingly obscure, but very real."

#### DATA USED IN THIS REPORT.

The law of King will find many illustrations in the tables presented in this report, but everywhere can be traced the effect of the factors enumerated by Professor Rogers, modifying the working of the law of price as stated by King. The tables are nearly all compiled from the figures gathered and published each year since 1862 by the United States Department of Agriculture. That department has gathered a vast mass of statistical data relating to the leading crops and the most important live stock of the farm, and presented the same in its annual reports. For wheat, corn, and oats it has published for each year since 1862 the acreage, total product in bushels and value in the currency of the day. It has gathered and published similar data relating to rye, barley, buckwheat, hay, potatoes, and tobacco, with the exception of the four years 1889, 1890, 1891, and 1892. For comparison in this report the data for these years and crops are supplied by estimate for 1889 and 1890, that are averages of the crops of the years 1887 and 1888. The corresponding estimates for 1891 and 1892 are averages of 1893 and 1894. The figures for corn, oats, and wheat are combined into one total by themselves. Another total gives a corresponding exhibit of the combined cereals, corn, oats, wheat, rye, barley, and buckwheat. A third includes with these, tobacco, potatoes, and hay. A comparison of the price movements of the three combinations can show the value of the estimates for the missing four years in two of them. In addition to the crop statistics for these nine crops given as the result of the investigation of the United States Agricultural Department, there is also given in this report, from the United States Statistical Abstract, the statistics of the cotton crop since 1867. These are gathered upon a different basis from those of the department, and represent the statistics of cotton shipped to the seaboard and factories in the year, rather than estimates of acres and product from data gathered on the farms. These cotton statistics are combined with those for the other nine crops in a table for all the crops of the nation.



## PRESENTING DATA BY GROUPS OF STATES.

These statistics are given not only for the nation as a whole but for certain groups of states that are considered typical of the agricultural industry in the different sections of the country. One general group consists of the ten states that occupy the great upper Mississippi valley. They are Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas. The two Dakotas would have been included in this group but for the fact that the agricultural department does not give separate statistics for them earlier than 1882. This group of ten states raises about seven-thirteenths of the agricultural produce of the nation. With the two Dakotas, they practically dominate the price of agricultural staples in the United States, and aid very largely in establishing those for the world. The data for these states are presented not only for the whole group but for each one of the states.

A second group of seven large states consists of New York, Pennsylvania, Virginia, Kentucky, Georgia, Texas, and California. They were selected because they were supposed to be fairly typical of the agriculture of all that portion of the Union not included in the first group of ten states. As in the first group, the data for group 2 are given not only for the whole but for individual states. The figures for two other groups are presented, but only for the whole and not for individual states. The first of these groups, or the third one presented, includes all the states which are not included in group 1, of ten states. The last of these groups includes a smaller list of states, and is composed of those not included in either group 1 or 2. Group 3 includes the states included in groups 2 and 4, and the nation includes all the groups.

## GROUPING BY YEARS.

In each of these tables for the several groups, with the exception of the last, the data are presented for all the years since 1862, unless through failure of the agricultural department to present the same for some given state. In these groups and for the states the data given as above for each year are gathered into certain sub-groups by periods of various lengths of time. The war period, 1862 to 1866, is given by itself. This period is made to include 1866, since 1867 is the first year in which the government begins to give data for all the Southern states, or for which reliable statistics of the cotton crop are available. After 1867 the figures are grouped by four-year periods, by seven-year periods, and otherwise. Every possible combination is presented which promised to throw light upon the price movement of these agricultural staples and the causes producing the same.



## FIGURES FOR LIVE STOCK.

In addition to giving the data collected by it relating to the ten crops already mentioned, the department of agriculture has each year since 1864 published tables showing the number and currency value of the horses, mules, cows, oxen, and other cattle, sheep and swine, on the farms of the United States. These figures do not include the live stock on the ranges of the far West. The data given for live stock are grouped in this report the same as that for the agricultural staples already mentioned.

## GOLD AND CURRENCY VALUES.

During the years 1861 to 1878 specie payment was suspended, and gold was at a premium in the United States. All values reported from the markets of the country and those given by the agricultural department for this period were in currency, and if we would ascertain the purchasing power of gold in those years the currency figures must be reduced to a gold basis. There is one exception to this statement. California, at all times during the years from 1861 to 1878, continued on a gold basis, and the government figures for that state are at all times gold prices and values, and not as with the case of the other states, the value of articles in the depreciated currency of the day. The ratios of gold to currency changed in the period of specie suspension every year, month and day. What ratio shall be chosen to reduce to a gold basis the currency values of the United States Department of Agriculture? If the values were the average ones for the calendar or fiscal year, then the percentage which expresses that ratio for any given year should be used in changing the set of currency values to the gold ones. The Commissioner of the Minnesota Bureau of Labor, at the outset of this investigation, assumed these yearly averages to best express the relation of currency to gold values in agricultural prices for the United States. Calculations were made on that basis, and some of the results given to the public. Later reflection satisfied him that those ratios were not the correct ones, and hence a change. The figures here used are those which represent the monthly averages for the month of January in each year. The agricultural department each year gives the statistics of the various crops for the preceding year with the values the last of December. It gives the number of the various kinds of live stock and their value on the first of January and sometimes the first of February. Thus the animals reported for January, 1865, in reality belong to the same agricultural year as the crop for December, 1864. The same remark applies cor-

respondingly to all years. This variation in the nominal years for the various figures of crop and live stock statistics is constantly kept in mind in all the tables of this report. There is one year's difference in the years given in the several groups of crops and live stock. This marks a difference in the calendar years, but enables the comparisons to be made with statistics which in each case are those of what may be called the same agricultural year.

This same fact was kept in mind in choosing the ratios of gold and currency finally used in this report. The figures for live stock being given indifferently the first of January or the first of February of any given year, the January ratio of that year would be the correct one with which to reduce their currency values to gold ones. With crop statistics given for the last of December, there can be no substantial error resulting from using each agricultural year the same ratios employed in the case of the live stock.

The United States Treasury Department, on page 116 of the Quarterly Report of the Bureau of Statistics for 1879, gives the value of a paper dollar in gold in the month of January each year as follows, in cents:

1862	1863	1864	1865	1866	1867	1868	1869	1870
97.6	68.9	64.3	46.3	71.4	74.3	72.2	73.7	82.4
1871	1872	1873	1874	1875	1876	1877	1878	
90.3	91.7	88.7	89.7	88.9	88.6	99.0	97.9	

These are the figures used as percentages to reduce the currency values to gold ones in this report. In the case of the live stock, the ratio for any given calendar year is always the same as that given above. With the agricultural crops the figures used are always given in the above table for the year next succeeding those given for the crops in the general tables in other parts of this report. That is, in reducing currency values for the agricultural year 1862 to gold ones, the ratio used is .689. This ratio is used thus alike for the live stock reported January, 1863, and the crops given December, 1862. Corresponding ratios are used for all farm values for all other years.

#### REDUCTION OF ALL CROPS TO A COMMON UNIT OF WEIGHT.

The agricultural department gives the product of corn, oats, wheat, rye, barley, buckwheat, and potatoes in bushels, that of hay in tons, of tobacco in pounds and of cotton in bales and gross pounds. To unite these diverse crops into one whole in such a way as to compare quantities as well as values, these bushels, tons, pounds, and

bales are reduced to tons, and thereafter brought for each set of states and for the nation into four groups of crops. The first group includes corn, oats, and wheat. The second includes the six cereals, the three included in the foregoing group together with rye, barley, and buckwheat. The third group includes nine, the foregoing and tobacco, potatoes, and hay. The fourth includes these and cotton.

#### AVERAGE VALUES.

For each individual crop there is given for each state and for the group its average value per bushel and ton in gold and currency. The average value per bushel is obtained by dividing the total value in gold or currency by the total number of bushels or tons. This average for any given crop in any given state, better than any other index, measures and records its price movements, the stationary or varying purchasing power of gold with reference thereto. But this average for any crop for a large number of states may not express that movement with any degree of accuracy, and for this reason: Each of the groups includes a number of states settled at different periods of history. It includes states differently situated with reference to transportation, and hence with different prices for the same commodity. Thus at the present time the price of wheat in Illinois is higher than, on an average, it is in Iowa or Nebraska, and for this reason. The wheat of the former state has to be transported several hundreds of miles less to convey it from the farms on which it was raised to the consumer in New York, New England or Europe. As a result the price in Illinois is above that in the other two states by a sum which represents the difference in the cost of transportation to market from the two states. This difference has always existed and probably always will. If the increase of product is the same in all the states, the simple average per ton for any group of seven or ten states obtained by dividing the total value by the total product in tons will exactly express the general price movement. If the states with the higher average increase the product more than do those farther from markets, and hence with a lower average price, then the simple average value for the group will be higher than it ought, and might conceal an actual general decline in value if one had taken place. So likewise, if the increase had been greatest in the states farthest from market, and thus with the lowest average price, the simple average first used would exaggerate any decline that had taken place, and in part at least conceal a real advance, if one had occurred. The same class of error is rendered possible in combining several crops into one whole, as greater increase in the



amount of the production of the lower priced crop than of the higher ones would exaggerate any decline that existed, and other changes in the ratios of increase of production among the crops of various relative values would have corresponding results concealing or exaggerating the real price movement that had taken place. To correct this possible element of error in the grand average for any given crop in a group of states, or of any combination of crops in a state or group of states, there is calculated a series of

#### CORRECTED AVERAGE VALUES.

These are obtained by combining the values for the given crops in the several states in the proportions which those states severally contributed in thirty-five years to the total product in tons, found in the group to which they belong. In the same way, in securing the corrected average for a number of crops gathered into one whole, the average values for each crop are combined in the proportions which the crops themselves in thirty-five years contributed to the total product in tons, of all the crops tabulated in the group. The tables show these corrected average values as well as the simple averages. The tables also give the price movement of all the crops by states and groups by means of

#### INDEX NUMBERS.

These index numbers have been made use of in all recent price investigations. For any given crop in any given state the index numbers in this report are calculated in accordance with the same general method as is employed in all other recent price statistics. The only difference is the year chosen as the basis of comparison. In this report the agricultural year 1872, the year before the financial legislation of 1873, is taken as the basis of comparison. The figures taken as the basis are the values for ten crops which prevailed in December, and for the live stock, those which prevailed in January, before the silver legislation of Germany and the United States. The former of those acts of legislation followed the date of that of the values chosen as a basis by only a few months. These index numbers are obtained by dividing the price for any year or group of years by the price of the given crop and state for the year 1872. Those indices are therefore the percentages which the price in any given year or group of years is of the corresponding price figures for 1872.

#### DIFFERENT INDEX NUMBERS FROM THESE USED BY SAUERBECK.

Mention has just been made above that the index numbers in this report for the individual crops, as of corn or oats or wheat, for any



single state, as Ohio or New York, are calculated by a method perfectly identical with that used by Mr. Sauerbeck, and in all recent statistics of prices. This is not the case, however, with the index numbers for a combination of a number of crops into one whole, or of the crops of any single grain, as wheat, raised in seven or ten states into one whole for the group of states. In calculating the index numbers for groups of different articles, Mr. Sauerbeck and most other modern statisticians of price have employed two methods. The first is known as that of general average. It is found by adding for any given year the index numbers of all the articles, and then taking the arithmetical mean of the same. Thus Mr. Sauerbeck groups eight articles under the head of vegetable food. For the year 1892 they have the following individual index numbers: English wheat, 56; American wheat, 59; flour, 61; barley, 67; oats, 76; maize, 67; potatoes, 60; and rice, 77. The total of these numbers is 523. Dividing it by eight we have as the simple average index number for the group, in 1892, 65.

A second method employed by Mr. Sauerbeck in calculating his index number for any group of articles for any given year or period is as follows: There is first calculated for the articles in the group the total value of the given articles sold in the country covered by the investigation. In Mr. Sauerbeck's case this is the United Kingdom of Great Britain. Then there is calculated what the given quantity of goods would have sold for if the prices had prevailed in the year or period used as the basis. Thus the total estimated actual value of the forty-five articles employed by him in the construction of his tables for 1892 was 482.4 million pounds sterling. If these had been sold for the prices that prevailed on an average from 1867 to 1877, this amount would have been 685.1 million pounds sterling. Dividing the former by the latter we have the index number for the group and year by this method. This is 70.4. The index number for the same forty-five articles obtained as an arithmetical mean of the forty-five separate indices is 68. The index numbers obtained by this second method are usually spoken of as those secured by calculating each article at its relative importance in the trade of the country, or usages of the people, according to the various modifications in the details of the methods described above which are employed by the different statisticians.

#### INDEX NUMBERS FOR GROUPS USED IN THIS REPORT.

Mention has already been made of the method of calculating what have been designated for a group of states, its simple average gold values per ton and its corrected values; that is, values so ad-

justed as to eliminate the effect of varying quantities raised of the higher and lower priced crops, and of grain raised in states with higher and lower levels of prices. For each of these and also for another set of averages of group prices, hereafter to be described, index numbers are calculated and presented. These are calculated, as with the case of the index numbers for individual articles in the several states, by dividing the value for each given year or period by the corresponding value for the year 1872, the year chosen as the basis of comparison by reason of its relation to the silver legislation of 1873. This method of calculating index numbers for groups of articles or states can only be used when all the articles passed in review can be reduced to a common unit of measure, as a ton, bushel, or pound. "For such articles it is thought that this method will throw much light upon the movement of average prices. These numbers are, however, but one relative measure of that movement, and no one measure is to be considered absolutely reliable. These index numbers are to be studied in connection with others calculated by different methods. As furnishing additional light for this controverted subject there have been calculated and will be presented with the three sets of index numbers, mentioned above, two other sets, one calculated by simple arithmetical average and the other by Mr. Sauerbeck's second method, according to relative importance."

The index numbers calculated by the different methods all are valuable in their way, and all throw some light upon the actual price movements passed in review. Each, however, has its limitations, which it is well to keep in mind, or these index numbers become very misleading by whatever method they may have been calculated. This fact can best be shown by the following concrete cases illustrating the instances in which the various methods lead to the same results and others in which they widely disagree. In some it is very clear which is the preferable method and in others it is less plain. Of course, cases are chosen for these illustrations that lead to perfect coincidence or widely different results. No case, however, is presented but what has its exact parallel in the data included in this report and for which index numbers are calculated.

#### COMPARISONS OF DIFFERENT METHODS OF CALCULATING INDEX NUMBERS.

1. As the first illustration of the different results to be obtained by different methods of calculating index numbers, there is chosen those to be deduced from the sale of equal amounts of two grains, say barley and corn, at two different periods of time, both varying

in their prices by the same ratio. In the first period barley sells for an average of one hundred cents a bushel and corn for fifty cents. In the latter period this barley sells for sixty cents and the corn for thirty cents. If the first period is taken as the basis of comparison and its index number made 100, the index number for the latter period would be 60 by all the methods of calculation.

2. If instead of choosing articles with unvarying quantities and with prices varying in like ratios in the periods compared, other articles are chosen varying in those periods in quantities and ratios, we note different index numbers by the various methods already mentioned. This is the case with a combination of articles that would be typical of the price movements of rye and corn in many of the states of the American Union. In those states corn is cultivated in large quantities, while rye is raised in smaller amounts. The calculation for securing index numbers by the various methods are herewith presented. The quantities and prices chosen are given in the calculation.

(a) By method of this report.

#### EARLIER PERIOD.

1,000,000 bushels corn at 40 cents.....	\$400,000.00
1,000 bushels rye at 100 cents.....	1,000.00
Total, 1,001,000 bushels both grains at 40.06 cents.....	<u>\$401,000.00</u>

#### LATER PERIOD.

1,000,000 bushels corn at 40 cents.....	\$400,000.00
1,000 bushels rye at 50 cents.....	500.00
Total, 1,001,000 bushels both grains at 40.01 cents.....	<u>\$400,500.00</u>

The first average being made the basis of comparison, has as its index number 100, while the second would have 99.89. Here is a decline of eleven-hundredths of one per cent.

(b) Index numbers by simple arithmetical average.

In the cases given above the index number for corn in both years is 100, that of rye in the earlier 100 and in the latter 50. The arithmetical mean of the two numbers for the latter year is 75. If these index numbers represent the course of prices, as they are supposed to do, then this index of 75 for the latter year records an average decline for the two grains of twenty-five per cent, as against the eleven-hundredths of one per cent, by the method of this report.

(c) Mr. Sauerbeck's index numbers calculated for quantities used.

Mr. Sauerbeck's second index numbers for the latter year is calculated in the following way: The actual total value of the corn



and rye in the latter year is divided by what that value would have been had the prices of the earlier year prevailed in the latter. The total values in the latter year are, we have seen, \$400,500. They would have been \$401,000 had the earlier prices prevailed. Dividing the first of these numbers by the latter we have the index number of the two, when combined by Mr. Sauerbeck's method, in proportion to actual quantities. This is 97.7. In this case this method corrects in large measure the error present in the index number calculated as the arithmetical mean of the index numbers of the two grains. The index numbers by the three methods are shown in this case to have been as follows: (1) By the method of this report, 99.89. (2) By arithmetical mean of index numbers, 75.0; and (3) by the corrected method of Mr. Sauerbeck, 97.7.

3. The third illustration of the different results obtained by calculating index numbers for groups of articles by these different methods is one that is typical of the wheat statistics of the Mississippi Valley. It shows the relative correctness of those methods in the wheat averages for that valley. The bushels and values of two kinds of wheat are shown in the following exhibit:

(a) Calculation for simple average values.

EARLIER PERIOD.

200,000,000 bushels winter wheat at 100 cents.....	\$200,000,000.00
50,000,000 bushels spring wheat at 50 cents.....	50,000,000.00
250,000,000 bushels two kinds wheat at 90 cents....	\$225,000,000.00

LATER PERIOD.

200,000,000 bushels winter wheat at 50 cents.....	\$100,000,000.00
200,000,000 bushels spring wheat at 50 cents.....	100,000,000.00
400,000,000 bushels two kinds wheat at 50 cents.....	\$200,000,000.00

(b) Calculation for corrected average values.

In the foregoing exhibit is presented a typical case where the product of one of the things included in a group increases far more in amount than the other. To correct any error in calculation due to this fact this report gives, in addition to the simple average prices such as are shown in the foregoing exhibit, corrected average prices for all periods and years included in the calculation. The method used for this calculation is to combine the prices in all years in the proportion in which the various crops by weight or bushel contribute to the total quantity included in the whole table. In the two periods shown above there were raised a total of 650,000,000 bushels, of which there were 400,000,000 bushels of winter and 250,000,000 bushels of spring. The two kinds were thus raised in the



relative proportion of forty and twenty-five. Using those numbers as multipliers we secure the corrected average prices of the two kinds of grain. This is the price of a fixed quantity of each grain in both years, that quantity being the average quantity of that grain for both periods.

## EARLIER PERIOD.

40 bushels winter wheat at 100 cents.....	\$40.00
25 bushels spring wheat at 50 cents.....	12.50
65 bushels both kinds wheat at 80.8 cents.....	<u>\$52.50</u>

## LATER PERIOD.

40 bushels winter wheat at 50 cents.....	\$20.00
25 bushels spring wheat at 50 cents.....	12.50
65 bushels both kinds wheat at 50 cents.....	<u>\$32.50</u>

The prices obtained by simple average show a decline of 44.4 per cent, while by the corrected average as last given that decline is 38.1. The index numbers for the simple average price, in the latter year, would therefore be 55.6, and for the corrected average price 61.9.

(c) Index numbers by simple arithmetical average.

By Mr. Sauerbeck's first method of simple arithmetical average the index number would be 75, or exactly the same as in the case of corn and rye just given. It would be difficult, however, to make a wheat farmer in Ohio or Kansas who raises winter wheat to believe that the decline in rye, mentioned above, is of the same relative importance in the total movement of price with that of winter and spring wheat, and should have its influence upon the index numbers for all crops shown by the same figures.

(d) Mr. Sauerbeck's index numbers calculated for quantities used.

By Mr. Sauerbeck's second method the index figures for the latter year would be found as follows: The four hundred million bushels of wheat then raised, had they been sold for the prices realized in the year chosen as the basis, would have brought \$300,000,000 instead of the \$200,000,000 for which they were actually sold. Dividing the smaller by the larger number we have as the resulting percentage 66.6. This would be the index number for the two grains grouped together in the later years, according to the second method of Mr. Sauerbeck. This index number is slightly below the index number of the corrected averages by the methods of this report. Here then are the four index numbers: That of the simple average price by the method here used, 55.6, that by the corrected average price here used, 61.9, the corrected method of Sauerbeck, 66.6, and the arithmetical mean of the two index numbers, 75.

4. As the fourth illustration of the different index numbers to be obtained by different methods there is chosen the following comparative figures. For the first year there are taken 50,000,000 bushels of winter wheat at 100 cents a bushel and 200,000,000 bushels of spring wheat at fifty cents a bushel; in the latter years 200,000,000 bushels of each at fifty cents. The simple average per bushel would be for the first year sixty cents and for the latter fifty. This average, corrected by the method already explained, and used for all the general corrected averages of the report, is for the first year 69.2 cents and for the latter year fifty cents.

The index for the last year would be for the simple average value per bushel, 83.3; for the corrected average, 72.3; the arithmetical mean of the index number of the two grains the last year, 75; and that by the correction method or test of Mr. Sauerbeck, 66.7.

#### MR. SAUERBECK'S COMMENTS ON THE VALUE OF INDEX NUMBERS.

No better statement of the limitations of the use of index numbers and the reason for employing them in most wide investigations of price movements can be found than that given by Mr. Sauerbeck himself when he gave to the public the first installment of his study on prices. He says (page 594, *Journal Royal Statistical Society*, 1885):

"It may be argued that index numbers do not in the aggregate give a correct illustration of the actual course of prices, as they take no notice of quantities, and estimate all articles as of equal importance. This is true to some extent, particularly if a comparison is made with very remote times, and if, in the interval, a radical change in the supply and demand of a certain article has taken place. To calculate each year separately according to quantities would be an undertaking of very great labor, and besides the statistical data would not be fully available, but I have worked out the three most important years 1849, 1873 and 1885, according to the importance of each article in the United Kingdom during the three years—1848-50, 1872-74, and 1883 to 1885 respectively."

In his later papers Mr. Sauerbeck calculates this data for 1892 and other years. In this extract he points out the superiority of index numbers that reflect exact quantities when the same are available for comparison. He mentions the labor necessary to calculate the price movement by reference to those quantities. The agricultural prices of the United States are here taken, and all possible calculations concerning quantities and amounts are presented. It is because so distinguished an authority as Mr.

Sauerbeck points out the desirability and superiority of this method when available that it has been adopted for this report, although it has involved a very large amount of labor in calculation.

#### THE EFFECT OF CHANGED COST OF TRANSPORTATION UPON PRICES.

In the corrected average values for groups of articles or states whose method of calculation has been described there is eliminated the effect upon the averages caused by the shifting of the grain fields to remote sections, with lower prices. There is also eliminated the effect of all changes that have occurred in the relative amounts of the high and low priced grains that are raised now and at various periods within the past thirty-five years. Those corrected averages do not make any allowance for the effect of changes in the transportation charges borne by agricultural products upon the prices realized by the farmers in different sections of our country and of the world. The effect of those changes is, as almost every one knows, far greater than those eliminated by the corrected average prices, above described. How can those effects of changing cost of transportation upon agricultural prices be calculated, and thus eliminated from the general average of price movements? This is a problem deserving the consideration of all students of price statistics. The Commissioner in charge of this report sees essentially but one method of calculating that effect. That method, whatever its details of applications to special cases, must first ascertain the movement of prices in what may be called the center of the producing section that is most influential in determining prices for the article investigated. The prices in that center of production will themselves be a fair index of the price movement of the given article, when that movement is unaffected by changed cost of transportation. The prices in this center of production will show substantially the same relative movement as will those of other sections, when the effect of changes in cost of transportation have been eliminated by calculation from the figures that indicate the general price movement for that other section.

#### ELIMINATING THE EFFECT OF CHANGES IN COST OF TRANSPORTATION FROM GENERAL PRICE STATISTICS.

To calculate the effect of changes in cost of transportation upon prices in a place or section not properly to be considered the center of production, comparisons of prices must be made between those for the place or section to be investigated and those for the place or section that can be considered such center of production. The



ten states of the Mississippi Valley included in one group in this report, states raising seven-thirteenths of the agricultural produce of the United States, not including cotton or sugar, can well be considered the most important single section of the world in determining modern agricultural prices. But these states cover a vast area, extending a thousand miles from east to west. A few of these states are more central than others. Those central states can be taken as a standard of comparison in ascertaining the variation of price in the group of ten states and also of the whole Union, and to a certain extent, those of the markets of the world.

#### THE STATES CHOSEN AS A BASIS OF COMPARISON OF PRICES.

The two states in the group of ten in the Mississippi Valley that are most central are Iowa and Illinois. Either might properly be chosen as the basis of comparison to measure the effect of changed railroad and other transportation charges upon prices in the agricultural products in the United States. A careful study of the price statistics for the two states shows that for a number of the leading staples, especially wheat and corn, Iowa prices have been in the past twenty-five years, less affected relatively by changes in cost of transportation and other local causes affecting prices than Illinois or any other in the group of ten. Iowa prices have therefore been selected as the basis with which to compare prices in the ten states and the other group of seven, and thus to measure the effect of varying railway rates and other purely local causes upon the price movement of American agriculture.

#### METHODS OF CALCULATION.

The first step taken in calculating the influence upon average prices, of changes in freight transportation charges, and other local causes, is to find for each year and period included in the tables the difference in prices for each and all articles of agriculture that were realized by the farmers of Iowa and those of other states. Thus in Table II., (b.), found in Chapter I., is given an exhibit of the difference for various years and periods of years of the gold prices per ton for corn in Iowa and in other states. Turning to any column, as that which shows under the title, Ohio, the difference between the prices of that state and those of Iowa, we find that the prices of Ohio have always for the past thirty-five years been higher than those for Iowa. The greatest difference between the prices realized by the farmers for their corn in these two states was in 1862, when that difference was \$6.15 a ton. This



was only twenty-eight cents a ton less than the sum of \$6.43, realized by the farmers in Iowa on an average per ton for their corn. It therefore required substantially one bushel of corn on the farms of Iowa to send it as far east as Ohio. It required not far from two bushels to send one from the farms of Iowa to New York City. The difference in the corn values in the two states decreased more or less regularly from 1862 to 1895, when that difference was only \$3.21, or only about one-half of what it was thirty-five years before. In the table of difference there are found for Ohio, as for all the other states, the influence of other factors influencing prices besides changing railway rates. But the effect of those other factors are transient. Their influence can be noted in the single years, and in the four-year periods more than in the seven-year periods. They show a more or less regular decline in the differences between the corn prices of the two states. Thus the difference in 1862 was \$6.15; for 1867 to 1873 it was \$5.66; for 1874 to 1880 it was \$5.31, and for 1881 to 1887, \$5.16; for 1888 to 1895, \$3.96, and for 1895, \$3.21. With this information it is comparatively easy to calculate

THE EFFECT OF CHANGED COST OF TRANSPORTATION BETWEEN ANY  
TWO STATES UPON PRICES.

Taking the smallest difference in price recorded between any two states, as that of \$3.21 for Ohio and Iowa in 1895, this sum is in turn subtracted from the sums which record the differences in other years and periods of time. The resulting differences are shown in the last half of the table described. That shows to what extent in the various years and periods in the past the price of corn was enhanced over the present price in that state by reason of the difference then and now in cost of transportation between Iowa, as the center of Western corn production and Ohio. This table shows therefore how much corn prices have been depressed in recent years by reason of changed cost of transportation within the Mississippi Valley.

To ascertain the total effect of the price changes shown in Table II., (b), for the several states, the differences are combined into one whole in the same manner as the average values per ton for the several states in calculating the corrected averages. The result obtained is shown in the last column of the first half of the table. The figures in the column are then treated the same way as those for all the columns of differences for the several states in the same table. The smallest amount given in this column for the ten states is subtracted from all the sums for other years and periods in the same column and the results recorded in the last column of Table

II., (b). The figures of this column mark the extent on an average in which the past prices in the ten states were raised above the present ones by reason of higher railroad rates in the past than now. Conversely those figures measure the amount of the general decline in average price that has, in these ten states, for the given crop shown in the table, taken place in thirty-five years as the result of changes in cost of transportation and other local causes. By subtracting the amount shown in the last column of Table II., (b), from the corrected average prices for the group, there is obtained a series of numbers that measure relatively the movement of prices after the element of transportation has been eliminated. The same method of calculation above described for the group of ten Mississippi states is applied to the group of seven seaboard states.

#### CHANGING SUPPLY AND DEMAND.

The changing supply of these agricultural staples, as that supply affects prices, is measured by the *per capita* product of each crop. This is obtained by dividing the product in tons of each crop by the number of the population of the nation each year. There is calculated and given in the tables for the nation for each staple, not only the *per capita* product in tons each year, but the gold value of that product. These *per capita* figures of the amount and value annually produced of each staple throw much light upon the relation of supply and prices. They afford the means of ascertaining how far Gregory King's law of prices, formulated before the advent of means of cheap transportation, is applicable to this day, with its wonderfully changed conditions.

#### CHANGED COST OF PRODUCTION.

In the tables that present the total product in tons and value in dollars gold of all the nine crops for any group or for the nation, there is calculated the product each year for each agricultural worker. There is also shown the value of that average product in dollars gold for every year and period of years. By means of these figures showing the product in tons produced by each agricultural worker and the value of the same, we learn how much the cost of producing agricultural staples has decreased by reason of changed methods of production. There is also shown by this table the relative returns realized by agricultural labor in the various years and periods of time passed in review. No question is of so much public importance as that of the proper remuneration of labor. If this remuneration is such that the standard of living

is declining, the fact measures a great public calamity. All facts and data collected by statisticians throwing light upon the relative condition of labor now and thirty years ago cannot fail to prove of general value, and will aid in reaching right conclusions concerning this mooted question of the possible or actual change in the purchasing power of gold by reason of legislation in and since 1873 adversely affecting silver.

## UNIFORMITY OF DATA.

The data included in this report have been gathered by the United States Department of Agriculture during a long series of years. During that time several different persons have been in charge of the work of gathering and tabulating the same. Have these different officials been able to gather data and present them on substantially the same basis? This is a question vital to the ultimate opinion that must be formed concerning this report and the conclusions reached by the same. A series of facts have been carried through all the leading tables, to furnish a test, if possible, of the uniformity or variability of the data here tabulated in a new form for the purposes of this investigation. The data here given for that purpose consists of the acreage and average yield in bushels and tons per acre. Good and bad crops cause wide fluctuations in the average yield of every crop per acre. There is, however, each year a smaller fluctuation in this average yield in the nation than in any single state, and smaller in the state than can be found in some of the counties of the same. Taking such a great nation as the United States as a whole for a series of years, it may be said that the productive power of nature is a fixed and unchanging quantity. The average yield of any four years' period varies less from that of other similar periods than the crop of one year varies with another. The average of seven-year periods should show a greater regularity than those of four-year periods. The tables all record this tendency to greater uniformity of average yield in the periods of greater length. But if we turn to the tables, and note the average yield per acre for seven, twelve, or fourteen-year periods, this fact is, in nearly every case, quite manifest. The period occurring last in the passage of years records a lower average than the corresponding earlier ones. The seven-year periods for most crops show a more or less regular movement toward a lower average yield per acre. In most cases this decrease in the average yield is small, varying from four to ten per cent only. But in statistics of agriculture such a decline for thirty-five years is to be carefully considered.



## CAUSES PRODUCING DECLINE IN THE AVERAGE YIELD PER ACRE.

There are three possible explanations that suggest themselves to the Commissioner in charge of this report for this decline in average yield to be noted in the accompanying tables: (1) This decline is only an apparent change in yield caused by increasing or decreasing care and accuracy on the part of the United States officials who gather and first tabulate the data here presented. (2) This decline is caused by opening up new lands in the far West, like those of the arid and semi-arid sections of Kansas and the Dakotas, and these lands by a lower average yield than that realized on other lands produce the small decline in the general average to which attention has been called. (3) The decline shown in the tables may be one that records an actual decrease in the productivity of the farms of the United States between thirty-five years ago and now. Such a decreased fertility could be produced by the exhaustion of the soil as the result of unwise methods of agriculture. It is often asserted that the grain fields of the West are less fertile now than when they were first opened to the plow. If they have thus declined in fertility, that decline marks the existence of a system of husbandry that calls for general improvement.

The more he has investigated the subject, the Commissioner in charge of this investigation has been led to the conclusion that the first of the three possible explanations here presented is the true one. The decline in average yield shown in the tables is apparent only. It is caused by a change in the accuracy of the returns of the United States Agricultural Department. But be the cause as thus stated, or either one of the other two suggested above, the extent of this decline in average yield must be taken into account in stating the gold values of the average yield per acre now and thirty-five years ago. It must be taken account of in estimating the average gold value of the returns for agricultural labor, now and at the beginning of the time, included in the tables. Would we, in connection with this silver question, use the gold value of an acre of corn or wheat, or the average acre of any number of crops, as a measure of the possible appreciation or depreciation of gold, we must be careful that our statistics are gathered on the same basis now as they were at the beginning of the time covered by the investigation. If they are not, we must make corrections to allow for the change. The same correction should be made if the decline in average yield has been caused either by the second or third cause referred to above. The value of the average of an acre of produce can be taken as the measure



of the change in the producing power of gold only as that produce represents the same thing during all the years considered. The yield of a fertile acre should not at one time be taken for comparison with a less fertile one at another. The yield of an acre of semi-arid land should not be placed in comparison with an acre of fertile and well-watered land. The changes in methods, however slight, of the Agricultural Department, if they have caused the apparent decline in average yield shown in the table, should be eliminated, before the figures of the primary returns are considered in measuring the average money returns for an acre of any crop or for the average return per annum for agricultural labor.

Whatever the causes, therefore, of the small decline of from four to ten per cent in the apparent average yield in bushels, or tons of the several crops in the past thirty-five years in the United States, proper allowance should be made for the same in such an investigation as this. Calculations have been made in the proper place allowing for this change in yield as that change affects the results properly to be deducted from data of this report.

#### GRAPHICS.

The average prices per bushel or ton for the various crops and combinations are shown in a series of graphics. In all cuts the data shown by the graphic method are for four and seven-year periods. The averages for the four-year periods are presented on one-half of the cut, and those for the seven-year periods on the other.

#### ARRANGEMENT OF TABLES.

A chapter is given to each staple of the farm or combination of the same. Other chapters are devoted to live stock. In each chapter will be found an analysis of the tables given in connection with the same, and at the close of the work a summary of conclusions to be deduced from the facts shown in the various chapters.

#### TABLE OF POPULATION AND MALE AGRICULTURAL WORKERS.

In all chapters use is made of the number of people in the United States in calculating the *per capita* product of the staples considered in them. There is here given in the introductory chapter a table showing for each year since 1867 the population of the United States and the male agricultural workers in the several groups of states for which the data is given in subsequent chapters. The population as given in the table is taken from the statistical

abstract of the bureau of statistics from the Treasury Department of the United States. The figures for agricultural workers were calculated by the Minnesota Bureau of Labor from data obtained of the United States Census.

The group of ten states includes Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas.

The group of seven states includes New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California. One group includes all the states not included in the last ten states, and another all not given in the two groups of ten and seven.

TABLE I.

A statement by years of the number of Population and of Male Agricultural Workers in the United States and of Male Agricultural Workers in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska and Kansas, and in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas and California, and in certain other groups of states.

Year.	Population United States.	MALE AGRICULTURAL WORKERS.				
		Ten States.	All States not in Group of Ten.	Seven States.	All States not in Group of Ten or Seven.	Nation.
1867	36,211,000	1,780,500	3,352,800	1,480,000	1,872,800	5,130,300
1868	36,973,000	1,837,000	3,411,700	1,512,000	1,899,700	5,258,700
1869	37,756,000	1,895,300	3,495,300	1,547,000	1,948,300	5,390,600
1870	38,558,371	1,955,455	3,570,048	1,580,189	1,989,859	5,525,503
1871	39,555,000	2,017,600	3,646,300	1,612,000	2,034,300	5,663,800
1872	40,596,000	2,081,700	3,724,000	1,647,000	2,077,000	5,805,700
1873	41,677,000	2,147,700	3,803,400	1,684,000	2,119,400	5,951,100
1874	42,796,000	2,215,900	3,884,200	1,725,000	2,159,200	6,100,100
1875	43,951,000	2,286,300	3,966,600	1,763,000	2,203,600	6,252,900
1876	45,137,000	2,358,900	4,050,700	1,803,000	2,247,700	6,409,600
1877	46,353,000	2,433,800	4,136,200	1,842,000	2,294,200	6,570,000
1878	47,698,000	2,511,000	4,223,500	1,883,000	2,340,500	6,734,500
1879	48,864,000	2,590,800	4,312,300	1,930,000	2,382,300	6,903,100
1880	50,155,783	2,673,040	4,402,943	1,968,144	2,434,799	7,075,983
1881	51,316,000	2,701,500	4,446,000	1,982,000	2,464,000	7,147,500
1882	52,495,000	2,730,300	4,488,800	1,996,000	2,492,800	7,219,100
1883	53,693,000	2,759,400	4,532,300	2,010,000	2,522,300	7,291,700
1884	54,911,000	2,788,800	4,576,300	2,024,000	2,552,300	7,365,100
1885	56,148,000	2,818,500	4,620,700	2,037,000	2,583,700	7,439,200
1886	57,404,000	2,848,500	4,665,500	2,052,000	2,613,500	7,514,000
1887	58,680,000	2,878,800	4,710,900	2,066,000	2,644,900	7,589,700
1888	59,974,000	2,909,500	4,756,500	2,081,000	2,665,500	7,666,000
1889	61,289,000	2,940,500	4,802,600	2,095,000	2,707,600	7,743,100
1890	62,622,250	2,971,805	4,849,307	2,110,153	2,739,154	7,821,112
1891	63,975,000	3,003,500	4,896,300	2,125,000	2,771,300	7,899,800
1892	65,403,000	3,035,400	4,943,900	2,139,000	2,804,900	7,979,300
1893	66,826,000	3,074,800	4,984,800	2,155,000	2,829,800	8,059,600
1894	68,275,000	3,107,600	5,033,100	2,172,000	2,861,100	8,140,700
1895	69,753,000	3,140,700	5,082,900	2,185,000	2,897,900	8,223,600

## CHAPTER II.

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### INDIAN CORN.

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#### THE SHIFTING OF THE GRAIN FIELDS TO MORE REMOTE SECTIONS.

One of the most influential factors in modifying and determining agricultural prices in the past quarter of a century has been the opening up of new sources of supply. Western Europe no longer looks for its breadstuffs and meat to one or two countries. It purchases supplies from the opening lands of Argentine as well as from the United States, from Austria, Egypt, and India, as well as from Russia. In Russia and the United States the building of new railroads in each country vastly extends the fields of grain competing for the world's markets. This opening up of new grain fields in every quarter of the globe has a two-fold effect upon prices. (1) In so far as it aids in increasing the food supply faster than the growing needs of the population competing for the same, it tends to depress prices all over the world. (2) In the statistics of prices covering a wide extent of country and including the older and newer sections, this opening up of new grain fields tends to cause those statistics to show a greater fall in prices than has taken place or to show the existence of a decline when none has occurred. The first of these results is a real price decline, and may properly be called an effect upon prices. The second is only an apparent price decline, and may be spoken of as an effect upon the statistics of prices. The character of this latter change may be illustrated by a concrete case. In 1864 Nebraska raised of corn on an average a million and a quarter bushels, while in 1895 it raised 125,000,000 bushels, or one hundred times as much. In 1862 Ohio raised about 72,000,000 bushels, and in 1895 nearly 93,000,000 bushels, only a slight relative increase. The farm value of 1895 was in Ohio twenty-seven cents and in Nebraska eighteen cents. Seventy-two million bushels at twenty-seven cents and one and a quarter million bushels at eighteen cents, the amounts in 1862 and 1864, and prices in 1895 would give an average for the com-



bined amount of 73,2500,000 bushels of 26.84 cents. The average for 93,000,000 bushels at twenty-seven cents and 125,000,000 at eighteen cents, the amounts and prices in 1895 in the two states, is 21.38 cents per bushel. Here are combinations of grains in differing quantities at the same prices. There is shown an apparent decline of 5.46 cents a bushel, or over twenty-five per cent of the later average.

Average prices, when they include in the totals such variations of condition, do not tell true stories. They are illustrations of the fact that figures do lie, the old proverb to the contrary notwithstanding. Averages of any kind to be true averages must include items tabulated under like conditions. The case of Ohio and Nebraska, as stated above, is a type of a vast number of instances of changes in the relative amounts of grain raised at different periods of time in the several states of the Union, and included in the groups tabulated in this report. Almost invariably the greater increase is in the section or state most remote from market, and hence with the lower average price under ordinary circumstances. The greater increase in the crops of the newer and more remote sections, and hence the sections with the lower average prices, is especially marked in the case of the ten Mississippi Valley states included in the main group, whose agricultural statistics are tabulated in this report. If no allowance is made for this fact, our statistics of average prices will be untruthful, in that they seem to record a greater decline than they actually have. To correct this possible error in its general averages there is calculated in this report for corn and for all the other crops, what has been spoken of in the introductory chapter as

#### CORRECTED AVERAGE VALUES.

The method of calculating these for corn may be stated more in detail than was done in the preceding chapter. The method will be illustrated by referring to the corrected averages of the ten states. These states, in the thirty-three years, 1862 to 1894, raised a total of 27,933,989,543 bushels of corn. During the same time the state of Ohio raised 2,868,478,336 bushels. This amount constituted 10.27 per cent of the total for the ten states. This percentage is found, as well as the total amount of corn produced in Ohio, in Table II. (a). The percentage is under the column marked "percentages," and in that column is itself distinguished by the letter (a) before it. The corresponding amounts of corn raised in each of the ten states is found in the same table. There is also found in this table the corresponding percentages for all the states,

marked (a). In the table for the seven states for corn, and in all the groups for the other crops, the percentages marked (a) represent in each case the proportion of the total yield in bushels or tons of the given crop which the specific state contributed in the period of thirty-three years.

Having first obtained the average gold value of any given crop in all the states for the various years and periods of years, those prices are combined in the proportion of the total yield in bushels of the respective states; or, what is the same thing, in the ratio expressed by these several percentages. The corrected average values thus obtained, and shown in the several tables for the groups, express the average value of a fixed amount of the several crops in the several states, that amount being one that exactly expresses the average influence which that state has, in thirty-three years, exerted in determining the average prices for the group.

By comparing the simple average prices for any group with these corrected averages, it is easy to ascertain how much the simple general averages conceal or exaggerate the real price movement, whether an advance or a decline.

Before examining in detail the tables for corn, to learn how great is the apparent decline in prices due to the shifting of the grain fields to the cheap lands of the far West, it is well to give a few lines to a consideration of some other phases of price statistics. One of the most important of these phases is

#### THE PROPER USE OF LONG AND SHORT PERIODS OF TIME.

If it is desired to trace the effect of very transient causes upon prices, comparisons should be made with short periods of time or with single years. Thus if it is desired to know the effect upon prices of an abundant or deficient harvest, the prices for that particular harvest must be compared with those for other individual years. If it is desired to ascertain the effect of factors or agencies or data that extend through a long series of years, longer periods of time must be chosen as the basis of comparison; the longer, other things being the same, the better. To measure the general movement of prices as it may possibly have been influenced by the silver legislation of 1873, there are presented in each table this data tabulated by the long periods of seven years. In some of the tables,—the principal ones,—that data is tabulated for even longer periods of time. For tracing the influence of more transient forces and causes affecting prices, the data tabulated as above for seven-year periods is also tabulated for four-year periods, and also for shorter ones. As the longer periods of seven years are the

best for measuring the possible effect of the silver legislation, so those years are the best for determining the apparent effect upon average prices of the shifting of the grain fields to cheaper and more distant lands, already referred to.

CALCULATING THE EFFECT UPON PRICES OF GRAIN FIELDS SHIFTING TO THE WEST.

The averages for seven-year periods will now be used for this purpose, in connection with those for the war period of 1862-66. Comparison will be made of the average prices or values, and the corrected ones for the groups in which the same have been included. These groups are three in number, those made up of the ten Central Mississippi Valley States, the seven states typical of the portion of the Union not included in the ten, and the seventeen including the other two groups. In connection with this data are given the corresponding simple average gold values of corn for the nation, to ascertain, if possible, how much these latter values have been influenced by this same shifting of grain fields to new sections. To assist in making these comparisons the necessary data, all obtained from the accompanying full tables of this chapter, are printed in the following subsidiary table:

TABLE A.

A comparative exhibit of the simple and corrected average gold farm values per bushel of Indian corn in the several groups of states and the United States for the years 1862 to 1892 inclusive, in cents. In the column of differences the plus sign shows the excess of the corrected average over that of the corresponding simple one, the minus sign indicates the reverse.

YEARS.	TEN STATES.			SEVEN STATES.			SEVENTEEN STATES.			NATION.	
	Simple Averages.	Corrected Averages.	Differences.	Simple Averages.	Corrected Averages.	Differences.	Simple Averages.	Corrected Averages.	Differences.	Simple Averages.	Corrected Averages.
1862-66	31.7	31.9	+0.2	54.7	57.1	+2.4	37.8	37.0	-0.8	39.9	39.1
1867-73	35.9	34.8	-1.1	61.1	61.2	+0.1	41.2	40.2	-0.9	47.6	46.7
1874-80	30.9	30.8	-0.1	51.3	51.3	.....	34.6	35.0	+0.4	38.1	38.1
1881-87	35.2	36.1	+0.9	55.7	55.4	-0.3	39.3	40.0	+0.7	42.2	42.9
1888-94	32.2	33.2	+1.0	49.9	51.1	+1.2	35.7	36.6	+0.9	38.4	39.3

Comparing the period 1862-66 with the last one of 1888-94, it is found that, in the ten states, the corrected average shows an increase of .8 cents a bushel more than does the simple average. In the seven states, by the same comparison, we learn that the simple average fails to record as great a decline as the corrected ones by the amount of 1.2 cents a bushel. In the seventeen states the sim-



ple average shows a decline of 1.7 cents a bushel greater than the corrected averages. In the seven states the simple averages conceal in part the decline in corn prices which had taken place in the same. In the other two groups those averages exaggerate the amount of that decline, as in the case of the seventeen states, or conceal the full extent of the advance that has taken place. If comparisons were made between the years 1867-73 and 1888-94 the same general differences in the two sets of averages can be noted, only in a more marked degree.

The states in the group of seventeen, in thirty-three years, raised 35,029,674,401 bushels of corn out of the total of 42,505,292,541 bushels grown in the nation. In other words, they raised 82.4 per cent of the corn produced in the United States. As it was impracticable, owing to the nature of the reports of the United States Department of Agriculture, to calculate corrected averages for the whole nation by the method usually employed in this report, the figures for the seventeen states can be taken as the nearest approximation here given to the corrected price movement of corn for the nation. The foregoing table shows that, in the seventeen states, the simple averages, by reason of the shifting of the grain fields, exaggerated the decline that had taken place from 1862 to 1887-1894 by an amount of 1.7 cents. The corresponding amount for the period 1867-73 was 1.8 cents. If there was the same error in the simple average values for the nation by reason of the shifting of grain fields to cheaper land (there was doubtless a greater difference), the true movement of average gold farm prices for corn in the nation can be ascertained approximately by allowing for the same difference as noted in the table given above for the seventeen states. Making an allowance for that difference, we have as the corrected average farm gold corn values for the nation the following: 1862-66, 39.1 cents; 1867-73, 46.7 cents; 1874-80, 38.1 cents; 1881-87, 42.9 cents; and in 1888-94, 39.3 cents a bushel, corrected average. These values for the nation, calculated in the manner described, are shown in the margin of the Table A.

#### NO GENERAL PRICE DECLINE SHOWN IN TABLES.

A glance at the foregoing Table A, or a most careful study of the detailed tables of this chapter, fails to disclose any general price decline in corn in the United States in the past thirty-five years.

On the other hand, there is exhibited a fixedness or general uniformity of prices that cannot be duplicated in the prices for any cereal, in any nation during an equal period of time, on the globe before 1873. The seventeen states by the corrected values show,



when comparing the period 1862-66 with 1888-94, a decline of only four mills a bushel. If the method of correction just explained is a valid one, the corrected values for the nation show an increase of two mills a bushel. The ten Mississippi Valley states show an increase in the latter of these two periods on the farms of 1.3 cents a bushel, while the seven states is the only group that chronicles a decline, and that of 6 cents. The cause of this decline, as will be shown later, and as every well informed person well understands, is the effect of Western competition through falling railway charges upon the prices of grain at the seaboard.

#### FLUCTUATIONS IN CORN PRICES.

Table A, while disclosing no general decline in thirty-three years in the gold farm values of corn in the United States, does exhibit fluctuations, as will the tables of prices for any grain in any country for a long series of years. The low average gold prices of the war period were followed by an advance, then came a decline, later an advance, and the averages close with a decline, but one with prices not below those recorded at the beginning. These fluctuations are shown more markedly for the periods of four years than for those of seven, and are more noticeable still for individual years.

#### THE EFFECT OF GOOD AND BAD HARVESTS UPON PRICES.

Among the most potent factors in causing the price fluctuations shown in the tables are those of good and bad harvests. In 1864 in the group of ten states there were produced 404,000,000 bushels of corn. In 1865 the crop was 548,000,000 bushels. The gold value for the larger crop was less than for the smaller. Prices thus varied more than crops, as was explained in the extract quoted in the preceding chapter from Professor Rogers. The same principle is illustrated in the amounts, total value, and average value of the small corn crop of 1894 and the excessively large one of 1895. No such extreme fluctuations of prices resulting from good and bad harvests can, however, be found in the corn prices of the table as are called for by the law of Gregory King, given in the preceding chapter.

#### LOCAL CAUSES FOR PRICE CHANGES.

A detailed study of the corn prices in the seventeen states given in Table II. (a) and (e) in this chapter discloses the existence of many local causes affecting local prices, but which are but little reflected in the general prices for the nation or for large groups of

states. The two most potent factors affecting local prices are varying local harvests and changes in transportation charges. The effect of these varying local causes can best be studied by the exhibit of the same presented in this report by the graphic method. The states in the group of seven exhibit a greater decline than those of the group of ten states. Here is exhibited the effect of changing railway rates. Some of the states included in the groups often show in the earlier years a very marked decline. This is especially true of Nebraska. In the earlier years this state did not raise as much corn as was needed to feed the stock in its borders. Corn was therefore shipped into the state from Iowa. The price in Nebraska was at that time the price in Iowa plus the railroad rates from that state. Later Nebraska, at times, became a large shipper of corn and the prices fell to a point where they were equal to those of Iowa less the railroad rates. Every Western state has witnessed similar price variations with all crops at certain periods of their settlement. Kansas as well as Nebraska in the years covered by these tables passed through this change from a buyer of corn to a shipper of the same. This accounts for a portion of the decline noted in the tables and on the sheet of graphics for a number of states. Thus some of the Southern States by the increased production of corn in their own borders have lessened the amount of corn shipped into them, and thus the average price of the same. This fact can be noted in the tables, and explains for those states the large decline shown on the graphic plate. A volume would not suffice to detail all these local causes affecting the prices of corn and other staples of the farm. These causes affecting prices of corn assist in changing the purchasing power of gold, and all must some way be accounted for and calculated before any estimate is made of the effect upon prices of the changing supply and use of gold and silver in the monetary system of the world. Later, reference will be made to the calculations for ascertaining the total influence of these local causes and forces upon prices.

#### THE EFFECT OF CHANGING FOREIGN DEMAND FOR AMERICAN FARM PRODUCTS UPON FARM PRICES.

In all the tables and upon the graphic plates it will be noted that the period 1879-82 stands out with average prices much higher than those of the preceding or succeeding periods. The high average price of that period was caused by the special foreign demand for American farm products that took place in the years contained in the same.

The first shipments of fresh meat by the refrigerator method, in commercial quantities, to Europe were made in 1878. The ex-

port of meat by this process soon thereafter grew to large proportions. It stimulated the live stock interests of the United States. That fact alone advanced the prices of all staples fed to cattle and swine, such as corn, oats, and hay. After a time this increase in meat shipments for export was checked by hostile custom tariffs and regulations, and corn prices dropped back to the figures that prevailed in earlier years.

#### THE EFFECT OF THE PANIC OF 1893.

After corn prices had thus been depressed subsequent to 1882 as the result of these hostile custom regulations of the European nations, other factors began to operate. In 1893 occurred the panic. In the same year the reciprocity treaties were repealed, and hostile foreign tariff charges and custom regulations became a greater factor in depressing prices. The result is shown in the decreased average value for corn in 1895 and the low value of the per capita product for 1893 to 1895, to which attention will shortly be called. In general it may be said that all causes that assisted in contributing to the panic of 1893 contributed to reduce the price of American corn, and the income derived by the farmer directly and indirectly from its sale or feeding to stock.

#### HIGH PRICES OF 1867-1870.

Attention has been called to the high prices that prevailed in the years 1879-82. Another era of high prices was that of 1867 to 1870. This era of high prices was caused by crop failures in the United States and Europe in 1866 and 1867, and the stimulus that was then given to American agriculture in the latter year by the great foreign demand for American wheat that began at that time. This subject will be referred to more at length under wheat. In this connection attention is simply called to the fact that factors acting temporarily raised the national average of prices above what they had been previously, as did the fresh meat shipments of 1879-82. In both cases the average price dropped back to their earlier figures so soon as the causes for raising prices had ceased.

The value men place upon such tables as those in this report as tests or measures of the result of hostile foreign customs tariffs, panics, and financial legislation at home will depend much upon the judgment as to the reliability of the averages calculated to show the price movements. As has been already mentioned, the index numbers showing that movement have been calculated by a number of different methods. The results of these different calculations for corn will now be compared.



## COMPARISONS BETWEEN INDEX NUMBERS OBTAINED BY DIFFERENT METHODS.

In the report four different sets of index numbers are given to throw light upon the price movement of groups of states or groups of agricultural staples. There is first the index numbers that represent the simple average values of the groups. Second, there are given the index numbers corresponding to the corrected average values of this report. Third, index numbers are given that are obtained by dividing the sum of the index numbers of the several groups by the number of states or crops contained in the same. And fourth, index numbers are obtained showing the movement of prices when the states or crops are combined in proportions that represent their relative importance. These last index numbers are the ones that are spoken of in this report as calculated by Sauerbeck's second or corrected method. The index numbers for corn calculated by all four of these methods are found in the detailed tables for groups in this chapter. Variations in the results obtained by different methods are shown more or less marked for all the smaller groups, but for the large group of seventeen states there is a marked agreement for most periods between the index numbers obtained from the corrected crop values of this report, and those by the second method of Mr. Sauerbeck. Attention is specially called in this connection to this agreement as shown in the following condensed table:

TABLE B.

A comparative exhibit of the relative price movement for thirty-three years for seventeen states as the same is expressed by index numbers calculated by the method of this report and by the method of Mr. Sauerbeck, the year 1872 being taken as the basis of comparison.

## INDEX NUMBER CALCULATED BY

Method of this Report.	Mr. Sauerbeck's Method.
1862-66.....	132
1864-73.....	143
1874-80.....	124
1881-87.....	143
1888-94.....	131
	129
	137
	124
	143
	132

The differences in the results obtained are found in the earlier years in which the amounts raised in some of the states varied widely from what are grown within their borders.

From the table it is seen that the results obtained by Mr. Sauerbeck's method chronicle a slightly greater increase of price when comparing the first and last periods than are recorded by the methods of this report. In the same way they chronicle a smaller rela-

tive fall when comparing 1867-73 with 1888-94. In other words, that method records a greater general uniformity of prices than would be indicated by the conclusion derived from the method adopted by this report.

#### CHANGES IN PRICES SINCE 1873.

The prices of December, 1872, and January, 1873, have been chosen, as has been already explained, as the basis of comparison to judge of the effect of silver legislation upon prices or upon the purchasing power of gold. A glance at the index numbers of the several groups of states will readily disclose the fact that in but two groups of states did the average prices of the seven and four years ending with 1894 record a scale of prices as low as those of the year immediately before the silver legislation, which is the subject of so much controversy.

The corrected average values for the ten states show a decline of three points when comparing the year 1895 with the year 1872. Both years were years of exceptionally bountiful harvests. This single year, as well as the groups of four and seven years, give by their corrected index numbers no hint or suggestion of a fall in prices or general increase in the purchasing power of gold in terms of corn, since the year of the silver legislation. Everywhere in the tables for states and groups of states there are figures showing the influences of changing supply and demand, and variations in the local causes affecting prices. Nowhere is there any evidence to be found of any general decline, or change even, in the level of corn prices of the United States as a whole. The conclusions of this report are based upon two radically different series of calculations. The method of Mr. Sauerbeck leads to conclusions that practically agree with those obtained by the method first adopted in this report.

#### EFFECT UPON PRICES OF CHANGES IN RAILWAY RATES.

Gold prices have advanced on the whole in the Mississippi Valley when comparisons are made between the last four years and the years 1862-66. They have fallen in the seaboard states, but one change balances the other. The farmers in one part of the country have gained at the expense of those in a remote part of our Union. Changing railway rates have therefore had no more general influence upon national corn values than has the silver legislation. These changing railroad rates have, however, been a potent factor in modifying local or state prices. The local effect of changing railroad rates upon corn values can be studied to advantage in Ta-

bles II. (b and f). Those tables give, first, the differences that have existed in the various years between the average prices in Iowa and those of the other states; and, second, the variations in these differences, or the local fluctuations of corn values that have taken place as the result of changes in the cost of shipping corn. The effect of changing freight rates upon wheat prices in the United States has been somewhat different from that upon corn prices. That, however, will be referred to in the chapter devoted to wheat.

Attention has now been called to many of the factors that in thirty-three years have assisted in determining corn prices in the United States. These factors have caused great fluctuations, but nowhere have been found in these years as great price variations as were recorded in past centuries, and which Gregory King had knowledge of when he formulated his law of prices. This fact proves that while railways with their changing cost of transportation greatly affect local prices of agricultural staples, those railways have introduced into modern times forces not existing in the ancient ones, steadying prices and preventing the extreme fluctuations that in preceding centuries accompanied good and bad harvests and kindred causes affecting prices.

#### THE LAW GOVERNING PRICE CHANGES IN AGRICULTURAL PRODUCTS IN MODERN TIMES.

The old price formula of King must therefore be set aside for one that conforms to modern conditions. Do the tables in this report enable us to formulate or state the law in accordance with which at the present time in the United States are determined the prices of such a staple as Indian corn? It is well carefully to scan the tables for the purpose of answering this question. Table II. (n) at the close of this chapter among other data gives for the nation the simple average gold prices per ton and bushel for every year and period from 1862 to 1895. It also gives from 1867 to 1893 an exhibit of the per capita or average amount of corn raised for each individual in this nation, and the value of the same. Turn to Table II. (n). It is seen that the annual per capita amount of corn raised and its average value per bushel or ton fluctuates far more than does the value of that annual per capita product. Turning to the seven or longer period of years it is seen that the value of the per capita product in the table appears to be less in the latter than in the earlier periods. Of itself this might seem to indicate that the value of the per capita product of corn was decreasing. But before we conclude that such is the fact use should be made of the average yield per acre as the same is shown in Table



II. (m). In the introductory chapter attention was called to the average yield per acre as a test of the general accuracy of the tables themselves. Mention was made of the fact that the average yield per bushel for most crops decreased in thirty-five years, according to the returns of the agricultural department. Mention was also made of three possible explanations of this fact, and the conclusion reached that whatever the cause, the fact of this decline in average yield must be taken into account in all the deductions concerning the value of the per capita product, or that of the average product for each agricultural worker. The average yield of corn reported by the agricultural department was in 1862-66, 30.5 bushels per acre. In 1867-73 it was 26.4 bushels; in 1874-80 it was 26.8 bushels; in 1881-87 it was 22.9 bushels, and in 1888-94 it was 23.8. Here is a decline when comparing the first and last periods of 31 per cent, and when comparing 1867-73 with 1888-94 of 14 per cent. Either involves a very large margin of error. To ascertain the real per capita product for the years 1867-94 use of the average yield per acre must be made in correcting the figures given in Table (n). Using the figures recording the average yield per acre in that way, the corrected per capita product for the seven-year period would be as given in the following table:

TABLE C.

A comparative exhibit of the per capita product of Indian corn produced in the United States from 1867 to 1894, inclusive, and the value of the same as shown in Table II. (n), and as the same should be when allowance is made for the changed methods of the agricultural department in compiling corn statistics and for the other factors, causing the tables to show an apparent decline in the average yield of corn per acre.

YEARS.	Average Gold Farm Values Per Ton.	PER CAPITA PRODUCT OF CORN.			
		As Shown in Table II. (n)		As Corrected to Allow for Changes in the Reported Average Yield Per Acre.	
		Weight in Tons.	Value in Dol- lars, Gold.	Weight in Tons	Value in Dol- lars, Gold.
1867-73 .....	\$17.01	.687	\$11.68	.640	\$10.89
1874-80.....	13.65	.811	11.09	.744	10.15
1881-87.....	15.07	.817	12.30	.872	13.13
1888-94.....	13.72	.756	10.38	.772	10.59

Turning to this table it is seen that three out of four of these seven-year periods give the value of the per capita product of corn at figures varying from \$10.15 to \$10.89. In these periods the yield of corn per capita and the average price per ton varied very nearly in an inverse proportion, so that the value of the per capita product

tended to become a fixed amount not far from \$10.50 per annum. Taking the three periods—1867-73, 1874-89, and 1888-94—there is noted a continuous rise in the national per capita product in tons that quite evenly balances the decline in simple average prices per ton. The period 1881 to 1887 differs greatly from the other three. It records a per capita yield in tons about 17 per cent greater than that of the preceding period and 13 per cent greater than the succeeding period. Its value was 29 per cent greater than that of the preceding, and 24 per cent greater than that of the succeeding one. This period, with a per capita product in tons and a value so much greater than that of the others, is the one which witnessed the large foreign demand for American meats and all secondary products derived from corn, to which attention has already been called. That foreign demand for American food stuffs which accompanied the first shipment of fresh meat to Europe by the refrigerator method not only elevated the price of corn, but found a market for an increased quantity at those higher prices, and so increased the farmer's average income from corn to the unprecedented extent of 29 per cent. The amounts and values of the per capita product of corn thus offer a most effective measure of the benefit that came to the American farmers from 1879 to 1882 and somewhat later by reason of the great foreign demand for American food stuffs that followed the first shipment of fresh meats to Europe. The gain to American farmers in corn alone from 1880 to 1887 as the result of this increased foreign demand was three dollars annually for each inhabitant of the country. This would make during the seven years covered by this period of enhanced prices a total gain for the farmers of the United States, as compared with their earlier or later relative incomes, of one thousand millions of dollars. A greater additional sum was realized by the farmers as the result of enhanced prices in other staples that took place during the same period.

These additional sums, flowing into the pockets of the farmers of the United States as the result of increased foreign demand for the products of their toil, gave a tremendous stimulus to business of every kind in the country. Does not the increased income of the farmer in that period fully account for the prosperity of the nation that followed the resumption of specie payment in 1878? Financial legislation in that year could not have had a hundredth part of the influence of the effect of this export demand for American fresh meat.

## SILVER LEGISLATION HAS NOT THEREFORE AFFECTED THE FARMER'S INCOME.

Study the tables of this chapter as carefully as possible, and no trace in the corrected average values per bushel or ton or in the corrected values of the *per capita* product can be found of the effect of the financial legislation of 1873. The corrected average prices for the nation as for the seventeen states as a whole show a wonderful fixedness. The corrected values of the *per capita* product show the same general stability. The only marked variation to be noted comes in the years 1879 to 1887. Those years mark an advance which has been subsequently lost. That loss cannot be charged up to the account of the legislation of 1873 without giving that legislation credit for the enormous gain realized from 1879 to 1882. The cause that produced the decline since 1882 was the reverse of the one that raised it from 1879 to 1882. That cause was the varying relative foreign demand for American meat and food stuffs.

A statement has been made of the relative increased income that came to the farmer in 1879 to 1887 by reason of the increased foreign demand for the products of his toil. The check to the demand which followed the hostile customs regulations of Germany and France brought prices and incomes back to their earlier proportions. The farmers speak of this change as a loss. It is a loss, and a tremendous one, to them, if we take the prices and income of 1879 to 1887 as the basis of comparison.

Mention has already been made of the tendency for the value of the *per capita* product of corn and of other grains to become a fixed quantity, subject to the influences and forces that affect prices and that originate outside of the United States, as did the factors connected with the first shipment of fresh meat to Europe and the subsequent check placed upon it by hostile customs regulations. The general uniformity of the *per capita* product was shown for the nation in Table C. The same fact can be noted by comparing the average value per ton and bushel of the *per capita* product and its value in 1894 and 1895. In the first year the *per capita* crop of corn in the United States was .498 tons; in the latter it was .864 tons. In the first the average value was \$16.33 per ton, or 45.7 cents per bushel. In the latter it was \$9.42 per ton, or 26.4 cents a bushel. The value of the *per capita* product was, however, unchanged, being \$8.12 in each case. In these last two years is found a great decrease in the value of the *per capita* product, as is also found in the year 1893 when this value is compared with that of the average from 1867 to 1892. In the low value of the *per capita* product that



is to be seen since 1893 is chronicled and measured the effect upon the corn-raising farmers of the United States of the causes that produced the financial panic of 1893. That effect involved a loss to the farmers of an enormous sum. It is from corn alone not less than \$150,000,000 per annum.

Having noted the gain in 1879 to 1887 and the loss following the panic of 1893 we can from the data passed in review restate the old

#### LAW OF PRICES.

and have the same conform to modern conditions. That law may be restated as follows: The value of the *per capita* product of a given crop tends to become a fixed amount. When, for a year or a series of years, the weight of the *per capita* product falls below the general average, the price advances until it causes the value of that *per capita* product apparently to equal that of the ordinary year. With an excessive yield the reverse movement of prices is chronicled. This law of prices is only determinative when there exists the ordinary or average condition of business affairs and the average foreign demand for the grain products of the farm. When that foreign demand is increased the value of the *per capita* product is enhanced, as it was from 1879 to 1882. When that extra foreign demand ceases the prices return to their earlier or normal average. Again, average prices are depressed, as is the value of the *per capita* product, by such causes as produced the financial panic of 1893. They will rise with the removal of those causes as they fell from the higher points of 1879 to 1882 with the cessation of the factors that produced temporarily the higher average.

In restating the law of prices with reference to the value of the *per capita* product, mention should be made of this fact. This law of prices is but a statement in another form of the fact so well known to every farmer, that large crops as a rule bring the same total returns as a small one.

#### CORN PRICES FOR THIRTY-FIVE YEARS IN IOWA AND ILLINOIS.

The central states in the group of ten Mississippi Valley states are Iowa and Illinois. They are the two great corn-growing states. Being in the center of the great group to which they belong, their prices have been less affected by changing railway rates than have those of the other and surrounding states. It is for this reason that Iowa prices have been chosen as the basis of comparison with which to calculate the relative movement of prices when the effect of changing railway rates has been eliminated from the simple or corrected average for gold values. It is worth while in this con-

nection to note the average values in these two states for the past thirty-five years. They are given for the seven-year periods in the following exhibit:

TABLE D.

An exhibit for Iowa and Illinois of the average gold farm values per ton and bushel of Indian corn for the seven-year periods from 1862 to 1894 inclusive.

YEARS.	IOWA CORN VALUES.		ILLINOIS CORN VALUES.	
	Per Ton.	Per Bushel.	Per Ton.	Per Bushel.
1862-66.....	\$8.88	\$0.246	\$9.82	\$0.275
1867-73.....	9.96	.279	11.50	.322
1874-80.....	8.82	.247	11.30	.316
1881-87.....	11.17	.313	13.61	.381
1888-94.....	10.28	.288	11.97	.335

In these states there is a marked and continuous rise in prices. That rise in Iowa is over fifteen per cent from 1862 to 1894. If prices of any single state or section can be considered a measure of the effect of currency legislation upon prices then those of Iowa and Illinois are of value for that purpose. They indicate not an appreciation in the purchasing power of gold but a depreciation of fifteen or sixteen per cent since 1862 and one of three to five per cent since the seven years ending with 1873, the year of the silver legislation.

If objection is made to taking the advance shown by the corn prices of Iowa and Illinois as the measure of the changed purchasing power of gold since 1873, we can turn to Tables II. (d), (h), and (j) for another measure of that changing purchasing power. Those tables along with other data present figures showing the relative movement of gold farm values in the ten, seven, and seventeen states for corn after due allowances is made for the effect of changing freight rates upon the same. They indicate that the increasing supply of the precious metals available for monetary purposes is causing a depreciation in the purchasing power of gold as well as of silver, although that depreciation of gold is masked or concealed by the operation of other forces, such as the changing railway freight rates.

## CONCLUSION.

It is easy by the use of the metaphysical or psychological method of the text-books on money to prove that prices have fallen as the result of the silver legislation of 1873. But that method of proof cannot stand before exact facts, showing the stability of prices such as have prevailed for corn, the most important of staples of the Ameri-

can farm since 1862. Facts, and not theories, are the determinating features in solving vexing financial problems, as has been so well stated by Professor Rogers in the long extract already given in the introductory chapter. That portion relating specifically to this part will be repeated in this connection: "There is no part of political economy in which the metaphysical or psychological method which you get from your text-books is more misleading and delusive than it is on this subject, where the only safe course is to collect and estimate facts." So far as facts can settle the question of silver legislation the data of this chapter are valuable. Beyond that they cannot go.

NOTE.—In the government agricultural reports there are no figures for corn or other grain in Nebraska or Kentucky before 1864, nor in Virginia, Georgia and Texas before 1866. California reports for 1862, but not again until 1868, and Minnesota has no report for 1866. These omissions cause the prices in the states named to vary in the early years by a different ratio from the other states, and causes the tables and graphics to exhibit a greater variation in these states than in the other, and greater than actually took place.



TABLE II. (a).

An exhibit by states for various years and periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the Indian Corn raised in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska and Kansas, together with the total home or farm value of the same in currency and its average home or farm value per bushel and tons in gold and currency and simple index numbers, showing the percentage which the average gold value each year or period of years was of the average gold value in the same state for the year 1872.

## OHIO.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Average Value in Dollars.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
62-66	391,315,433	10,956,832	235,254,254	.379	21.47	13.53	a-10.27	126
67-70	294,041,000	8,233,148	188,164,480	.510	22.85	18.23	b-37.67	169
71-74	365,701,000	10,239,628	162,479,000	.399	15.87	14.24	c-65.62	132
75-78	415,643,700	11,638,024	160,152,421	.365	13.76	13.64	.....	121
79-82	398,705,200	11,163,745	196,904,444	.494	.....	17.64	.....	164
83-86	367,022,000	10,276,616	139,052,530	.379	.....	13.53	.....	126
87-90	321,644,000	9,006,032	129,150,961	.402	.....	14.34	.....	133
91-94	314,406,003	8,803,368	130,539,676	.415	.....	14.83	.....	138
62-94	2,868,478,336	80,317,593	1,341,697,766	.416	16.70	14.84	.....	138
62-66	391,315,433	10,956,832	235,254,254	.379	21.47	13.53	.....	126
67-73	571,320,000	15,996,960	299,358,720	.433	18.71	15.62	.....	145
74-80	729,691,700	20,431,367	301,830,121	.396	14.77	14.13	.....	131
81-87	613,898,200	17,189,110	280,986,594	.458	.....	16.35	.....	152
88-94	562,253,003	15,713,084	224,268,077	.399	.....	14.25	.....	132
76-78	320,643,700	8,978,024	118,352,421	.345	13.18	12.32	.....	119
93-95	229,244,189	6,418,837	81,795,073	.357	.....	12.74	.....	118
1862	71,792,523	2,010,191	31,588,710	.303	15.71	10.82	.....	100
1872	99,351,000	2,781,828	33,779,340	.302	12.14	10.77	.....	100
1895	92,783,186	2,597,929	25,051,460	.270	.....	9.64	.....	90

## INDIANA.

62-66	465,487,652	13,033,654	236,095,565	.319	18.11	11.41	a-11.57	124
67-70	357,739,000	10,016,692	193,821,640	.432	19.35	15.44	b-48.76	168
71-74	307,210,000	8,601,880	119,306,980	.348	13.87	12.44	c-70.67	135
75-78	428,252,000	11,991,056	140,678,040	.311	11.73	11.12	.....	121
79-82	421,252,100	11,795,059	184,927,954	.439	.....	15.68	.....	171
83-86	451,166,000	12,632,648	151,114,240	.335	.....	11.96	.....	130
87-90	392,559,000	10,991,652	141,667,178	.361	.....	12.89	.....	140
91-94	409,213,159	11,457,969	154,891,557	.379	.....	13.52	.....	147
62-94	3,232,878,911	90,520,610	1,322,503,154	.364	14.61	12.99	.....	141
62-66	465,487,652	13,033,654	236,095,565	.319	18.11	11.41	.....	124
67-73	590,325,000	16,529,100	275,070,380	.389	16.64	13.89	.....	151
74-80	737,025,800	20,686,723	264,300,970	.344	12.81	12.26	.....	133
81-87	709,668,300	19,870,713	282,607,504	.398	.....	14.22	.....	155
88-94	730,372,159	20,450,420	264,428,735	.362	.....	12.93	.....	141

NOTE.—In this table and in the one marked (c), in the column for percentages, those marked (a) are in each state the percentages which the total product in tons of that state is of the total product of the group; those marked (b) are the percentages which the product of the given crop in a state is of the product of the nine crops in the same state; and those marked (c) are the percentages of the given crop in a state in the total for corn, oats and wheat for the same state.

TABLE II. (a)—Continued.

INDIANA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Average Value in Dollars.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
76-78	333,252,000	9,331,056	103,628,040	.291	11.11	10.39	.....	118
93-95	303,692,927	8,503,402	94,511,688	.311	.....	11.11	.....	121
1862	92,855,454	2,599,953	26,928,082	.200	10.35	7.13	.....	78
1872	85,541,000	2,395,148	24,806,890	.257	10.36	9.19	.....	100
1895	121,435,768	3,400,202	27,930,227	.230	.....	8.21	.....	89

## ILLINOIS.

1862	138,356,135	3,873,972	32,821,911	.163	8.47	5.84	.....	77
1864	83,013,681	2,324,383	51,479,442	.399	22.15	14.24	.....	187
1864	138,356,135	3,873,972	103,767,101	.347	26.79	12.40	.....	168
1865	177,095,852	4,958,683	51,800,536	.209	10.45	7.46	.....	91
1866	155,844,350	4,363,642	67,013,070	.319	15.36	11.41	.....	150
1867	109,091,000	3,054,548	74,281,880	.492	24.32	17.56	.....	231
1868	134,363,000	3,762,164	57,776,090	.317	15.36	11.32	.....	149
1869	121,500,000	3,402,000	69,255,000	.470	20.36	16.77	.....	221
1870	201,378,000	5,638,584	70,482,300	.316	12.50	11.29	.....	149
1871	203,391,000	5,694,948	65,085,120	.293	11.43	10.48	.....	138
1872	217,628,000	6,093,584	52,230,720	.213	8.57	7.60	.....	100
1873	143,634,000	4,021,752	45,962,880	.287	11.43	10.25	.....	135
1874	133,579,000	3,740,212	74,804,240	.498	20.00	17.78	.....	234
1875	280,000,000	7,840,000	95,200,000	.301	12.14	10.76	.....	142
1876	223,000,000	6,244,000	69,130,000	.292	11.07	10.42	.....	137
1877	260,000,000	7,280,000	75,400,000	.286	10.36	10.20	.....	134
1878	225,932,700	6,326,116	56,433,175	.250	.....	8.93	.....	118
1879	312,221,000	8,742,188	96,788,510	.310	.....	11.07	.....	146
1880	240,452,896	6,732,681	86,563,043	.360	.....	12.86	.....	169
1881	176,733,000	4,948,524	102,505,140	.580	.....	20.72	.....	273
1882	182,336,900	5,105,433	85,698,343	.470	.....	16.79	.....	221
1883	203,786,500	5,706,022	81,514,600	.400	.....	14.29	.....	188
1884	244,544,000	6,847,232	75,808,640	.310	.....	11.07	.....	146
1885	268,998,000	7,531,944	75,319,440	.280	.....	10.00	.....	132
1886	209,818,000	5,874,904	65,043,580	.310	.....	11.07	.....	146
1887	141,080,000	3,950,240	57,842,800	.410	.....	14.64	.....	193
1888	278,060,000	7,785,680	80,637,400	.290	.....	10.36	.....	136
1889	259,125,000	7,255,500	62,190,063	.430	.....	8.57	.....	113
1890	187,446,000	5,248,488	80,601,741	.240	.....	15.36	.....	202
1891	234,880,000	6,576,640	86,905,510	.370	.....	13.21	.....	174
1892	165,327,000	4,629,156	61,171,098	.370	.....	13.21	.....	174
1893	160,550,470	4,495,413	49,770,646	.310	.....	11.07	.....	146
1894	169,121,491	4,735,402	65,957,381	.390	.....	13.93	.....	183
1895	255,136,554	7,143,824	56,130,042	.220	.....	7.86	.....	104
62-66	692,666,153	19,394,652	306,882,060	.275	15.82	9.82	a-22.85	129
67-70	566,332,000	15,857,296	271,795,270	.333	17.14	13.68	b-50.36	180
71-74	698,232,000	19,550,496	233,082,960	.306	12.18	10.93	c-73.34	144
75-78	988,932,700	27,690,116	296,213,175	.283	10.70	10.12	.....	133
79-82	911,743,796	25,528,826	371,555,036	.408	.....	14.55	.....	191
83-86	927,146,500	25,960,102	297,686,260	.321	.....	11.47	.....	151
87-90	865,711,000	24,239,908	281,272,004	.325	.....	11.60	.....	153
91-94	729,878,961	20,436,611	263,804,635	.361	.....	12.91	.....	170
62-94	6,380,643,110	178,658,007	2,327,291,400	.332	13.03	11.84	.....	156
62-66	692,666,153	19,394,652	306,882,060	.275	15.82	9.82	.....	129
67-73	1,130,985,000	31,667,580	435,073,990	.322	13.74	11.50	.....	151
74-80	1,675,135,596	46,905,197	554,368,968	.316	11.82	11.30	.....	149
81-87	1,427,236,400	39,964,239	543,732,543	.381	.....	13.61	.....	179
88-94	1,454,509,961	40,726,279	487,263,839	.335	.....	11.97	.....	157

TABLE II. (a)—Continued.

ILLINOIS—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Average Value in Dollars.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton, Cur- rency.	Gold.		
76-78	708,932,700	19,850,116	201,013,175	.265	10.13	9.47	.....	130
93-95	584,808,515	16,374,639	171,858,069	.294	.....	10.50	.....	138
1862	138,356,135	3,873,971	32,821,911	.164	8.48	15.84	.....	77
1872	217,628,000	6,093,584	52,230,720	.213	8.57	7.60	.....	100
1895	255,136,554	7,143,824	56,130,042	.220	.....	7.86	.....	103

## MICHIGAN.

62-66	70,551,020	1,975,428	52,144,407	.466	26.40	16.63	a-2.56	122
67-70	67,068,000	1,877,904	49,715,930	.591	26.47	21.12	b-19.17	155
71-74	59,954,000	1,678,713	31,724,400	.474	18.89	16.94	c-40.87	124
75-78	96,947,700	2,714,536	45,464,626	.445	16.75	15.88	.....	117
79-82	119,379,101	3,342,615	62,582,419	.524	.....	18.72	.....	138
83-86	105,775,300	2,961,708	42,484,536	.402	.....	14.34	.....	105
87-90	97,272,000	2,723,616	44,308,159	.456	.....	16.27	.....	119
91-94	97,898,935	2,741,172	46,308,675	.473	.....	16.89	.....	124
62-94	714,846,106	20,015,692	374,733,152	.474	18.72	16.93	.....	124
62-66	70,551,020	1,975,428	52,144,407	.466	26.40	16.63	.....	122
67-73	114,333,000	3,201,324	73,192,480	.535	22.86	19.09	.....	140
74-80	175,366,201	4,910,254	83,638,911	.456	17.03	16.30	.....	120
81-87	178,354,900	4,993,938	84,226,920	.472	.....	16.87	.....	124
88-94	176,240,985	4,934,748	81,530,434	.463	.....	16.52	.....	121
76-78	73,347,700	2,053,736	31,068,626	.396	15.13	14.15	.....	108
93-95	77,148,227	2,160,150	31,436,543	.407	.....	14.55	.....	107
1862	15,190,137	425,324	6,379,858	.290	15.00	10.34	.....	76
1872	16,987,000	475,636	7,304,410	.381	15.36	13.62	.....	100
1895	33,600,242	940,807	10,752,077	.320	.....	11.43	.....	84

## WISCONSIN.

62-66	51,107,736	1,431,017	32,530,208	.401	22.73	14.32	a-2.69	113
67-70	51,945,000	1,454,460	32,861,200	.497	22.26	17.76	b-16.99	140
71-74	74,374,000	2,082,472	34,606,900	.417	16.62	14.91	c-38.17	118
75-78	107,800,000	3,018,400	39,450,000	.347	13.07	12.39	.....	98
79-82	134,921,582	3,777,805	61,483,641	.455	.....	16.27	.....	128
83-86	111,022,300	3,108,625	41,903,474	.377	.....	13.48	.....	106
87-90	119,984,000	3,359,552	45,726,995	.389	.....	13.96	.....	110
91-94	102,313,509	2,864,778	40,934,252	.400	.....	14.29	.....	113
62-94	753,468,127	21,097,109	328,996,670	.405	15.59	14.45	.....	114
62-66	51,107,736	1,431,017	32,530,208	.401	22.73	14.32	.....	113
67-73	110,827,000	3,103,156	57,208,140	.431	18.43	15.39	.....	121
74-80	196,971,982	5,515,216	77,945,153	.379	14.13	13.52	.....	106
81-87	198,038,900	5,545,089	85,477,422	.431	.....	15.41	.....	122
88-94	196,522,509	5,502,631	75,835,747	.386	.....	13.78	.....	109



TABLE II. (a)—Continued.

WISCONSIN—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Average Value in Dollars.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
76-78	92,600,000	2,592,800	31,242,000	.316	12.05	11.27	.....	93
93-95	78,342,006	2,193,576	27,894,254	.350	.....	12.49	.....	99
1862	10,087,053	282,437	4,034,821	.276	14.29	9.85	.....	78
1872	21,180,000	593,040	8,472,060	.355	14.29	12.68	.....	100
1895	33,093,497	926,618	9,928,049	.300	.....	10.71	.....	84

## MISSOURI.

62-66	261,702,796	7,327,678	133,934,741	.323	18.28	11.52	a-14.03	113
67-70	286,894,000	8,033,032	158,135,210	.440	19.69	15.71	b-60.57	155
71-74	310,026,000	8,680,728	121,925,700	.353	14.05	12.60	c-81.09	124
75-78	426,562,400	11,943,747	116,546,224	.259	9.76	9.25	.....	91
79-82	565,508,808	15,834,246	220,060,957	.389	.....	13.90	.....	137
83-86	700,075,000	19,602,100	201,785,290	.288	.....	10.29	.....	101
87-90	737,718,000	20,656,104	240,411,363	.326	.....	11.64	.....	114
91-94	629,908,369	17,637,434	225,979,782	.359	.....	12.81	.....	126
62-94	3,918,395,373	109,715,069	1,418,779,267	.337	12.93	12.02	.....	119
62-66	261,702,796	7,327,678	133,934,741	.323	18.28	11.52	.....	113
67-73	5,087,100	15,424,388	245,984,650	.373	15.95	13.32	.....	131
74-80	775,014,208	21,700,397	243,874,161	.329	11.24	11.76	.....	116
81-87	1,104,130,000	30,915,640	380,745,700	.345	.....	12.32	.....	121
88-94	1,226,677,369	34,346,966	414,240,015	.338	.....	12.06	.....	119
76-78	298,562,400	8,359,747	80,706,224	.253	9.65	9.02	.....	93
93-95	512,281,617	14,343,885	141,478,427	.276	.....	9.86	.....	97
1862	82,483,232	2,309,531	21,445,640	.179	9.28	6.39	.....	63
1872	103,741,000	2,960,748	33,837,120	.284	11.43	10.14	.....	100
1895	233,072,248	6,666,023	47,614,450	.200	.....	7.14	.....	70

## IOWA.

1862	49,340,393	1,331,530	9,374,675	.131	6.79	4.68	.....	92
1863	34,538,276	987,072	13,815,310	.257	14.29	9.19	.....	161
1864	55,261,240	1,547,315	37,370,414	.313	24.15	11.18	.....	196
1865	62,997,813	1,763,939	18,899,344	.214	10.71	7.65	.....	134
1866	52,288,184	1,464,069	23,006,801	.327	15.71	11.68	.....	205
1867	53,333,000	1,493,324	29,333,150	.397	19.64	14.18	.....	249
1868	65,332,000	1,829,296	24,172,840	.273	13.21	9.74	.....	171
1869	78,500,000	2,198,000	39,250,000	.412	17.85	14.71	.....	205
1870	93,415,000	2,615,620	31,761,100	.307	12.14	10.96	.....	192
1871	99,019,000	2,772,532	22,774,470	.211	8.21	7.53	.....	132
1872	101,989,000	2,855,692	18,358,020	.160	6.43	5.70	.....	100
1873	105,200,000	2,945,600	32,612,000	.278	11.07	9.93	.....	174
1874	115,720,000	3,240,160	49,759,600	.342	15.36	13.65	.....	230
1875	160,000,000	4,480,000	43,200,000	.239	9.64	8.54	.....	150
1876	142,500,000	3,990,000	32,625,000	.205	8.18	7.70	.....	135
1877	153,000,000	4,368,000	39,000,000	.246	8.93	8.79	.....	154
1878	175,256,400	4,907,179	28,041,024	.160	.....	5.71	.....	100
1879	185,189,200	5,185,298	44,445,408	.240	.....	8.57	.....	150
1880	260,192,840	7,285,399	67,650,138	.260	.....	9.29	.....	163
1881	173,289,000	4,852,093	76,247,160	.440	.....	15.71	.....	276
1882	175,487,600	4,913,652	66,685,238	.380	.....	13.57	.....	229

TABLE II. (a)—Continued.

IOWA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Average Value in Dollars.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1883	169,629,000	4,749,612	54,281,280	.220	.....	11.43	.....	200
1884	252,600,000	7,072,800	58,098,000	.230	.....	8.21	.....	144
1885	242,496,000	6,789,888	58,199,040	.240	.....	8.57	.....	150
1886	198,847,000	5,567,716	59,654,100	.300	.....	10.71	.....	188
1887	183,502,000	5,138,056	64,225,700	.350	.....	12.50	.....	219
1888	278,232,000	7,790,496	66,775,680	.240	.....	8.57	.....	150
1889	349,966,000	9,799,048	66,493,554	.190	.....	6.79	.....	119
1890	232,439,000	6,508,292	95,301,164	.410	.....	14.64	.....	204
1891	350,878,000	9,824,584	105,263,488	.300	.....	10.71	.....	188
1892	200,221,000	5,606,188	64,070,566	.320	.....	11.43	.....	200
1893	251,832,150	7,051,300	67,994,681	.270	.....	9.64	.....	169
1894	81,344,010	2,277,633	36,604,805	.450	.....	16.07	.....	282
1895	298,502,650	8,358,074	53,730,477	.180	.....	6.43	.....	113
62-66	254,425,906	7,123,925	102,466,544	.246	14.38	8.88	a-18.57	156
67-70	290,580,000	8,136,240	124,517,090	.344	15.30	12.29	b-47.88	216
71-74	421,928,000	11,813,984	123,504,090	.262	10.45	9.37	c-75.73	164
75-78	533,756,400	17,745,179	142,866,024	.218	8.05	7.79	.....	137
79-82	794,158,640	22,236,442	255,027,994	.321	.....	11.47	.....	201
83-86	863,572,000	24,180,016	230,232,420	.267	.....	9.52	.....	167
87-90	1,044,139,000	29,235,892	292,796,078	.280	.....	10.00	.....	175
91-94	884,275,160	24,759,705	273,933,535	.310	.....	11.06	.....	194
62-94	5,186,835,106	145,231,333	1,545,343,775	.282	10.64	10.03	.....	177
62-66	254,425,906	7,123,925	102,466,544	.246	14.38	8.88	.....	156
67-73	596,788,000	16,710,064	198,261,580	.279	11.86	9.96	.....	175
74-80	1,194,858,440	33,456,036	304,721,170	.247	9.11	8.82	.....	155
81-87	1,395,850,600	39,083,817	437,390,568	.313	.....	11.19	.....	196
88-94	1,744,912,160	48,857,541	502,503,913	.288	.....	10.28	.....	181
76-78	473,756,400	13,265,179	99,666,024	.197	7.51	7.02	.....	128
93-95	631,678,810	17,687,007	158,329,963	.251	.....	8.95	.....	157
1862	49,340,393	1,381,531	9,374,675	.131	6.79	4.68	.....	80
1872	101,989,000	2,855,692	18,358,020	.160	6.43	5.70	.....	100
1895	298,502,650	8,358,074	53,730,477	.180	.....	6.43	.....	113

## MINNESOTA.

62-66	16,965,448	475,033	10,436,658	.387	21.97	13.84	a- 1.55	121
67-70	24,828,000	681,184	16,690,430	.547	24.50	19.55	b-12.39	171
71-74	30,877,000	864,556	13,259,530	.385	15.33	13.75	c-24.23	121
75-78	45,046,900	1,261,313	16,019,801	.337	12.70	12.04	.....	106
79-82	68,572,650	1,920,034	27,936,128	.407	.....	14.55	.....	128
83-86	77,090,800	2,158,543	26,967,184	.350	.....	12.49	.....	109
87-90	81,252,000	2,275,056	27,970,132	.344	.....	12.29	.....	108
91-94	89,814,904	2,514,817	34,046,100	.379	.....	13.54	.....	119
62-94	433,947,702	12,150,536	173,325,963	.388	14.26	13.49	.....	118
62-66	16,965,448	475,033	10,436,658	.387	21.97	13.84	.....	121
67-73	47,657,000	1,334,396	26,100,480	.457	19.56	16.33	.....	143
74-80	83,787,950	2,346,063	29,684,429	.339	12.65	12.11	.....	106
81-87	132,551,400	3,711,439	51,778,134	.391	.....	13.95	.....	122
88-94	152,985,904	4,283,605	55,326,262	.362	.....	12.92	.....	113

TABLE II. (a)—Continued.

MINNESOTA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Average Value in Dollars.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
76-78	37,706,900	1,055,793	12,937,001	.321	12.25	11.45	.....	105
93-95	79,993,494	2,239,818	23,867,842	.298	.....	10.66	.....	93
1862	3,983,426	111,535	1,513,901	.262	13.57	9.35	.....	82
1872	7,988,000	223,664	2,875,680	.319	12.86	11.41	.....	100
1895	35,956,690	1,006,787	7,191,338	.200	.....	7.14	.....	63

## NEBRASKA.

62-66	5,955,736	166,761	4,249,086	.425	25.48	15.29	a- 6.64	268
67-70	17,423,000	487,844	8,274,330	.379	16.96	13.53	b-53.42	237
71-74	25,317,000	708,876	7,688,020	.272	10.84	9.72	c-76.98	171
75-78	146,222,000	4,094,216	28,090,500	.182	6.86	6.50	.....	114
79-82	263,358,200	7,374,030	78,187,250	.298	.....	10.63	.....	186
83-86	458,933,900	12,850,149	92,101,676	.201	.....	7.17	.....	126
87-90	442,220,000	12,382,160	111,644,033	.253	.....	9.02	.....	158
91-94	495,931,419	13,886,079	136,983,218	.276	.....	9.86	.....	173
62-94	1,855,361,225	51,950,115	467,218,133	.249	8.99	8.88	.....	155
62-66	5,955,736	166,761	4,249,086	.425	25.48	15.29	.....	268
67-70	39,240,000	1,008,720	13,407,350	.285	12.20	10.19	.....	179
74-80	271,789,000	7,610,092	58,638,894	.207	7.71	7.38	.....	130
81-87	693,375,100	19,414,503	170,240,552	.246	.....	8.77	.....	154
88-94	845,001,419	23,660,039	220,682,251	.261	.....	9.33	.....	164
76-78	118,222,000	3,310,216	22,490,520	.178	6.79	6.35	.....	116
93-95	296,819,488	8,310,946	72,016,376	.243	.....	8.67	.....	152
1862	.....	.....	.....	.....	.....	.....	.....	.....
1872	7,589,000	212,492	1,866,020	.160	6.43	5.70	.....	100
1895	125,685,069	3,519,182	22,623,312	.180	.....	6.43	.....	113

## KANSAS.

62-66	33,262,527	931,351	18,817,098	.356	20.21	12.73	a- 9.27	183
67-70	55,831,000	1,563,268	31,366,880	.449	20.07	16.02	b-47.10	230
71-74	117,389,000	3,286,891	42,868,940	.328	13.04	11.70	c-74.65	168
75-78	339,999,400	9,519,983	73,787,686	.206	7.75	7.35	.....	105
79-82	416,768,360	11,669,514	152,773,954	.367	.....	13.09	.....	188
83-86	626,402,900	17,539,281	154,224,074	.246	.....	8.79	.....	126
87-90	530,510,000	14,854,280	140,929,388	.266	.....	9.49	.....	136
91-94	468,972,430	13,131,228	154,654,025	.330	.....	11.78	.....	169
62-94	2,589,135,617	72,495,796	769,422,045	.289	10.61	10.32	.....	148
62-66	33,262,527	931,351	18,817,098	.356	20.21	12.73	.....	183
67-73	157,155,000	4,400,340	59,616,670	.317	13.55	11.31	.....	162
74-80	552,003,160	15,456,088	143,434,668	.249	9.28	8.88	.....	127
81-87	923,779,500	25,865,826	280,292,586	.304	.....	10.84	.....	155
88-94	922,935,430	25,842,191	267,261,023	.290	.....	10.34	.....	148
76-78	263,299,400	7,372,383	56,146,686	.199	7.62	7.12	.....	107
93-95	386,014,176	10,808,397	122,632,525	.318	.....	11.35	.....	163
1862	6,814,601	190,809	2,180,672	.221	11.43	7.88	.....	113
1872	29,631,000	829,668	6,518,820	.195	7.86	6.97	.....	100
1895	204,769,746	5,733,273	61,427,924	.300	.....	10.71	.....	154



TABLE II. (b).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the differences between the average farm or home gold values of Indian Corn per ton in the States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Minnesota, Nebraska and Kansas, and the corresponding values in Iowa, together with an exhibit of the fluctuations in said states that have occurred in thirty-five years in those average values by reason of changes in transportation charges and from various local causes of price variation.

Years.	*DIFFERENCES.									Average Ten States.
	Ohio.	Ind.	Illinois.	Mich.	Wis.	Mo.	Minn.	Neb.	Kan.	
62-66	4.65	2.53	.94	7.75	5.44	2.64	4.96	6.41	3.85	2.390
67-70	5.94	3.15	1.39	8.83	5.47	3.42	7.26	1.24	3.73	2.516
71-74	4.87	3.07	1.60	7.57	5.54	3.23	4.38	.35	2.33	2.155
75-78	5.25	3.33	3.14	8.09	4.60	1.46	4.25	-1.29	-44	1.947
79-82	6.17	4.21	-1.35	7.25	4.80	2.43	3.08	-.84	1.62	1.441
83-86	4.01	2.44	5.03	4.82	3.96	.77	2.97	-2.35	-.73	1.834
87-90	4.34	2.89	1.60	6.27	3.96	1.64	2.29	-.98	-.51	1.273
91-94	3.77	2.46	1.85	5.83	3.23	1.75	2.48	-1.20	.72	1.432
62-66	4.65	2.53	.94	7.75	5.44	2.64	4.96	6.41	3.85	2.390
67-73	5.66	3.93	1.54	9.13	5.43	3.36	6.37	.23	1.35	2.409
74-80	5.31	3.44	2.48	7.48	4.70	2.94	3.29	-1.44	.06	2.032
81-87	5.16	3.03	2.42	5.68	4.22	1.13	2.76	-2.42	-.35	1.530
88-94	3.96	2.64	1.68	6.23	3.49	1.77	2.63	-.96	.05	1.410
62-94	4.76	2.91	1.76	6.85	4.37	1.94	3.41	-1.20	.24	1.619
76-78	5.53	3.51	2.56	7.44	4.43	2.09	4.62	-.70	.11	2.028
93-95	3.78	2.15	1.54	5.59	3.53	.90	1.70	-.29	2.39	1.412
1862	6.14	2.45	1.16	5.66	5.17	1.71	4.67	-4.68	3.20	1.592
1872	5.07	3.49	1.90	7.92	6.98	4.44	5.71	.....	1.27	2.098
1895	3.21	1.78	1.43	5.00	4.28	.71	.71	.....	4.28	1.132

VARIATIONS IN VALUES DUE TO CHANGES IN TRANSPORTATION CHARGES AND OTHER CAUSES.

62-66	1.44	.75	2.29	2.93	2.21	1.93	4.25	11.09	4.58	1.258
67-70	2.73	1.37	2.74	4.01	2.24	2.71	6.55	5.92	4.46	1.384
71-74	1.66	1.29	2.93	2.75	2.31	2.52	3.67	5.03	3.06	1.023
75-78	2.04	1.55	4.49	3.27	1.37	.75	3.54	3.39	.29	.815
79-82	2.96	2.43	.....	2.43	1.57	1.72	2.37	3.84	2.35	.309
83-86	.80	.66	6.38	.....	.73	.06	2.26	2.33	.....	.702
87-90	1.13	1.11	2.95	1.45	.73	.93	1.58	3.70	.22	.141
91-94	.56	.68	3.20	1.01	.....	1.04	1.77	3.48	1.45	.300
62-66	1.44	.75	2.29	2.93	2.21	1.93	4.25	11.09	4.58	1.258
67-73	2.45	2.15	2.89	4.31	2.20	2.65	5.66	4.91	2.08	1.277
74-80	2.10	1.66	3.83	2.66	1.47	2.23	2.58	3.24	.79	.900
81-87	1.95	1.25	3.77	.86	.99	.42	2.05	2.26	.98	.378
88-94	.75	.86	3.03	1.41	.26	1.06	1.92	3.72	.78	.278
62-94	1.55	1.13	3.11	2.03	1.14	1.23	2.70	3.48	.97	.487
76-78	2.32	1.73	3.91	2.62	1.20	1.38	3.91	3.98	.84	.896
93-95	.57	.37	2.89	.77	.30	.19	.99	4.39	3.12	.280
1862	2.93	.67	2.51	.84	1.94	1.00	3.96	.....	3.93	.460
1872	1.86	1.71	3.25	3.10	3.75	3.73	5.00	.....	2.00	.966
1895	.....	.....	2.78	.18	1.05	.....	.....	.....	5.01	.....

\*The figures generally indicate the excess of values over those of Iowa; the minus sign, however, denotes the opposite.

TABLE II. (c).

An exhibit by years and by certain periods of years from 1862 to 1895, inclusive, of the acres planted to Indian Corn in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska and Kansas, together with the total product of corn in said states, in bushels and tons, and its total farm or home value in dollars, currency and gold, and its average home or farm values per bushel and ton in gold and currency.

Year.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars.	Average Value Per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.	Gold.	Currency.	Gold.
1862	12,195,876	470,902,954	13,185,283	136,268,270	93,888,838	7.12	28.9	19.9
1863	12,221,193	303,309,215	8,492,658	184,861,372	118,665,862	14.00	61.0	39.2
1864	12,962,008	401,602,276	11,328,864	348,666,358	161,432,756	14.25	86.2	39.9
1865	14,120,694	548,075,165	15,346,104	209,313,152	149,449,591	9.74	38.2	27.3
1866	15,334,004	516,550,797	14,463,422	253,700,969	188,499,820	13.03	49.1	36.5
1867	14,213,086	397,605,000	11,132,940	275,912,780	199,209,027	17.89	69.4	50.1
1868	14,252,554	474,841,000	13,295,548	243,846,840	179,715,121	13.72	51.4	37.9
1869	17,357,716	482,350,000	13,505,800	290,554,000	239,416,496	17.73	60.2	49.6
1870	18,765,587	657,385,000	18,406,780	264,528,840	238,869,542	12.97	40.2	36.3
1871	16,560,397	636,137,000	17,812,396	215,833,820	197,919,613	11.11	33.9	31.1
1872	17,840,580	693,625,000	19,421,500	189,519,020	168,129,981	8.66	27.3	24.3
1873	21,287,040	567,538,000	15,891,064	203,049,140	182,135,079	11.47	35.7	32.1
1874	22,624,959	513,688,000	14,388,264	287,014,540	255,155,926	17.74	55.8	49.7
1875	26,037,529	908,840,000	25,447,520	302,017,800	267,687,771	10.52	33.2	29.5
1876	28,366,500	846,086,000	23,690,408	259,712,640	244,389,594	10.32	30.7	28.9
1877	29,468,880	912,050,000	25,537,400	263,928,500	259,969,673	10.18	28.9	28.5
1878	29,868,500	962,187,200	26,941,242	243,609,577	.....	8.67	24.3	24.3
1879	31,288,400	1,118,677,000	31,322,956	334,870,299	.....	10.69	.....	29.9
1880	35,823,294	1,308,065,837	31,641,843	381,284,089	.....	12.05	.....	33.7
1881	37,051,300	1,806,119,000	22,627,332	443,034,280	.....	19.58	.....	54.8
1882	36,223,058	1,037,505,600	29,050,185	452,251,109	.....	15.57	.....	43.6
1883	37,653,332	1,038,446,700	29,076,508	364,343,824	.....	12.53	.....	35.1
1884	38,437,733	1,251,596,000	35,044,688	342,138,850	.....	9.76	.....	27.3
1885	40,229,090	1,321,917,000	37,013,676	346,886,290	.....	9.37	.....	26.2
1886	42,096,591	1,076,247,000	30,134,916	324,182,720	.....	10.76	.....	30.1
1887	38,901,790	843,211,000	23,609,908	324,641,450	.....	13.75	.....	38.5
1888	41,326,025	1,362,154,000	38,140,312	383,071,980	.....	10.04	.....	28.1
1889	44,065,974	1,486,007,000	41,608,196	326,497,461	.....	7.85	.....	22.0
1890	38,616,920	941,637,000	26,367,836	421,665,400	.....	15.99	.....	44.8
1891	43,081,256	1,398,664,000	39,162,592	483,214,299	.....	12.34	.....	34.5
1892	39,620,117	1,082,951,000	30,322,628	375,919,752	.....	12.40	.....	34.7
1893	41,078,380	1,093,022,333	30,604,625	335,924,831	.....	10.98	.....	30.8
1894	31,452,709	647,975,466	18,143,313	267,016,753	.....	14.72	.....	41.2
1895	47,907,797	1,439,025,650	40,292,718	322,379,356	.....	8.00	.....	22.4
62-66	66,833,775	2,243,440,407	62,816,331	1,132,810,621	712,136,867	11.34	50.5	31.7
67-70	64,588,943	2,012,181,000	56,341,068	1,074,842,460	857,210,186	15.21	53.4	42.6
71-74	78,312,976	2,411,008,000	67,508,224	895,446,520	803,340,599	11.90	37.1	33.3
75-78	113,791,409	3,629,163,200	101,616,570	1,059,268,517	1,005,556,515	9.90	29.2	27.7
79-82	140,386,052	4,094,368,437	114,642,316	1,611,439,777	.....	14.06	.....	39.4
83-86	158,416,746	4,688,206,700	131,269,788	1,377,551,684	.....	10.49	.....	29.4
87-90	162,910,709	4,633,009,000	129,724,252	1,455,876,291	.....	11.22	.....	31.4
91-94	155,232,462	4,222,612,799	118,233,158	1,462,075,455	.....	12.37	.....	34.6
62-66	66,833,775	2,243,440,407	62,816,331	1,132,810,621	712,136,867	11.34	50.5	31.7
67-73	120,276,960	3,909,501,000	109,466,028	1,683,274,440	1,405,394,559	12.34	43.1	35.9
74-80	203,528,062	6,391,594,087	178,964,633	2,062,437,445	1,976,866,829	11.05	32.3	30.9
81-87	270,592,894	7,377,043,300	206,557,213	2,597,478,523	.....	12.58	.....	35.2
88-94	279,241,381	8,012,410,799	224,347,502	2,593,310,396	.....	11.51	.....	32.2
62-94	940,473,072	27,933,989,543	732,151,707	10,069,311,325	9,285,187,374	11.87	33.1	33.2
67-94	373,639,397	25,690,549,156	719,335,376	8,936,500,704	8,573,050,507	11.92	34.8	33.4
67-78	216,693,328	8,052,352,200	225,465,862	3,079,557,497	2,666,107,800	12.27	37.6	34.4
79-86	298,802,798	8,782,575,137	245,912,104	2,988,991,461	.....	12.15	.....	34.0
87-94	318,143,171	8,855,621,799	247,957,410	2,917,951,746	.....	11.77	.....	33.0
67-78	256,693,328	8,052,352,200	225,465,862	3,029,557,497	2,666,107,800	12.27	37.6	34.4
79-82	140,386,052	4,094,368,437	114,642,316	1,611,439,777	.....	14.06	.....	39.4
83-94	476,559,917	13,543,828,499	379,227,198	4,295,503,430	.....	11.33	.....	31.7
67-80	323,305,022	10,301,095,037	288,430,661	3,745,711,885	3,382,261,688	11.73	36.1	32.8
81-94	549,834,275	15,889,454,099	430,904,715	5,190,788,819	.....	12.05	.....	33.7
76-78	87,703,880	2,280,323,200	76,169,050	757,250,717	737,968,744	9.69	27.8	27.1
92-95	120,433,886	3,180,023,449	89,040,656	925,320,780	.....	10.39	.....	29.1

TABLE II. (d).

An exhibit for various years and periods of years, from 1862 to 1895 inclusive, of the different average gold farm values and index numbers for the Indian Corn raised in Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations, explained in the table.

## CORN—TEN STATES.

Years	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages adopted in this report. (2)		Allowing for Influence of Changing Freight Rates Per Ton. (3)	Corresponding to Column.			Average of Indices for Ten States	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
62-66	\$11.34	\$11.40	\$0.319	\$10.14	131	138	139	146	137
67-70	15.21	14.98	.423	13.60	176	181	186	182	164
71-74	11.90	11.68	.327	10.66	92	141	146	140	139
75-78	9.90	9.72	.272	8.90	114	117	122	114	111
79-82	14.06	14.09	.399	13.78	162	170	189	163	170
83-86	10.49	10.83	.303	10.13	121	131	139	125	130
87-90	11.22	11.57	.324	11.43	130	139	156	135	140
91-94	12.37	12.66	.354	12.36	143	153	169	147	154
62-66	11.34	11.40	.319	10.14	131	138	139	146	137
67-73	12.84	12.44	.348	11.16	148	150	153	150	143
74-80	11.05	11.02	.309	10.12	127	131	139	127	131
81-87	12.58	12.89	.361	12.51	145	156	171	148	155
88-94	11.51	11.87	.332	11.59	133	143	159	139	145
62-94	11.87	11.87	.333	11.41	137	143	156	139	143
76-78	9.69	9.12	.255	8.22	142	110	112	112	113
93-95	10.39	10.54	.295	10.26	120	127	140	.....	128
1862	7.12	9.31	.261	8.85	82	112	121	83	113
1872	8.65	8.28	.232	7.31	100	100	100	100	100
1895	8.00	8.04	.225	8.04	92	97	110	096	99

(a). Computed by Sauerbeck's Method.



TABLE II. (c).

An exhibit by states for various years and periods of years from 1862 to 1895 inclusive, of the total product, in bushels and tons, of the Indian Corn raised in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency, and the average home or farm value, per bushel and ton, in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period of years was of the average gold value in the same states for the year 1872.

## NEW YORK.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER			Percentage.	Index No.
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency.	Gold.		
1862	24, 073, 257	674, 052	15, 888, 350	.455	23.57	16.24	.....	73
1863	24, 073, 257	674, 051	24, 073, 257	.643	35.71	22.96	.....	104
1864	22, 628, 862	633, 608	38, 016, 488	.778	60.00	27.78	.....	125
1865	25, 344, 325	709, 641	24, 077, 109	.678	33.93	24.23	.....	109
1866	22, 809, 893	638, 677	26, 459, 475	.862	41.43	30.78	.....	139
1867	19, 500, 000	546, 000	25, 740, 000	.953	47.14	34.04	.....	153
1868	20, 910, 000	585, 480	23, 419, 200	.825	40.00	29.48	.....	133
1869	19, 100, 000	534, 800	19, 673, 000	.849	36.79	30.31	.....	137
1870	19, 426, 000	543, 928	16, 900, 620	.786	31.07	28.06	.....	127
1871	17, 483, 000	489, 524	14, 336, 060	.752	29.28	26.85	.....	121
1872	19, 231, 000	538, 468	13, 461, 700	.621	25.00	22.18	.....	100
1873	17, 692, 000	495, 376	12, 384, 400	.628	25.00	22.43	.....	101
1874	16, 807, 000	470, 596	15, 630, 510	.827	33.21	29.53	.....	133
1875	19, 750, 000	553, 000	14, 615, 000	.656	26.43	23.42	.....	106
1876	21, 000, 000	588, 000	14, 280, 000	.640	24.29	22.85	.....	103
1877	22, 700, 000	635, 600	13, 620, 000	.591	21.43	21.11	.....	95
1878	25, 020, 000	700, 560	12, 510, 000	.500	.....	17.86	.....	81
1879	22, 704, 000	635, 712	13, 849, 440	.610	.....	21.79	.....	98
1880	27, 895, 680	781, 079	15, 900, 538	.570	.....	20.36	.....	92
1881	20, 985, 000	562, 320	15, 465, 450	.770	.....	27.50	.....	124
1882	21, 187, 500	593, 250	16, 314, 375	.770	.....	27.50	.....	124
1883	17, 512, 700	490, 356	12, 784, 271	.730	.....	26.07	.....	118
1884	22, 674, 000	634, 872	13, 604, 460	.600	.....	21.43	.....	97
1885	22, 448, 000	628, 544	13, 019, 840	.580	.....	20.71	.....	93
1886	22, 426, 000	627, 928	12, 558, 560	.560	.....	20.00	.....	90
1887	23, 410, 000	655, 480	13, 343, 700	.570	.....	20.36	.....	92
1888	22, 870, 000	640, 360	13, 264, 600	.580	.....	20.71	.....	93
1889	20, 475, 000	573, 300	10, 032, 672	.490	.....	17.50	.....	79
1890	17, 101, 000	478, 828	11, 115, 672	.650	.....	23.21	.....	105
1891	22, 080, 000	618, 240	14, 572, 556	.660	.....	23.57	.....	106
1892	17, 414, 000	487, 592	10, 448, 242	.600	.....	21.43	.....	97
1893	15, 255, 483	427, 153	8, 390, 516	.550	.....	19.64	.....	89
1894	13, 854, 040	387, 913	8, 450, 964	.610	.....	21.79	.....	98
1895	13, 014, 170	504, 397	8, 106, 377	.450	.....	16.07	.....	72
62-66	118, 929, 594	3, 330, 029	128, 514, 679	.680	38.59	24.29	a-9.68	110
67-70	78, 936, 000	2, 210, 208	85, 732, 820	.852	38.79	30.46	b 7.26	137
71-74	71, 213, 000	1, 993, 964	55, 812, 670	.703	28.00	25.12	c-39.30	113
75-78	88, 470, 000	2, 477, 160	55, 025, 000	.591	22.21	21.12	.....	95
79-82	91, 872, 180	2, 572, 421	61, 529, 803	.670	.....	23.92	.....	108
83-86	85, 060, 700	2, 381, 700	51, 967, 071	.611	.....	21.82	.....	98
87-90	83, 856, 000	2, 347, 968	47, 756, 644	.569	.....	20.84	.....	92
91-94	68, 603, 523	1, 920, 898	41, 862, 278	.610	.....	21.79	.....	98
62-66	118, 929, 594	3, 330, 029	128, 514, 679	.680	38.59	24.29	.....	110
67-73	133, 342, 000	3, 733, 576	125, 914, 980	.776	33.73	27.73	.....	125
74-80	155, 876, 680	4, 364, 547	100, 405, 488	.616	23.00	21.99	.....	99
81-87	149, 743, 100	4, 192, 810	97, 090, 595	.648	.....	23.15	.....	104
88-94	129, 049, 523	3, 613, 386	76, 275, 222	.591	.....	21.11	.....	95

TABLE II. (c)—Continued.

NEW YORK—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER			Percentages.	Index Nos.
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency	Gold.		
62-94	686,940,997	19,234,348	528,200,965	.660	27.46	23.59	.....	106
67-94	568,011,403	15,904,319	399,686,286	.656	25.13	23.44	.....	.....
76-78	68,720,000	1,924,160	40,410,000	.573	21.00	20.48	.....	92
93-95	47,123,693	1,319,463	24,947,857	.529	.....	18.91	.....	85
1862	24,073,257	674,051	15,888,350	.450	23.57	16.24	.....	73
1872	19,231,000	538,468	13,461,700	.621	25.00	22.18	.....	100
1895	18,014,170	504,397	8,106,377	.680	.....	22.66	.....	72

## PENNSYLVANIA.

62-66	161,134,310	4,511,761	151,448,566	.592	33.57	21.15	a-18.23	111
67-70	130,802,000	3,662,456	123,903,190	.756	33.83	27.00	b-19.43	142
71-74	155,968,000	4,367,104	105,985,340	.609	24.27	21.77	c-49.98	115
75-78	171,435,000	4,800,180	90,879,900	.502	18.93	17.95	.....	94
79-82	178,428,500	4,995,998	110,022,141	.561	.....	20.02	.....	105
83-86	167,942,400	4,702,387	88,999,188	.530	.....	18.93	.....	100
87-90	169,587,060	4,748,438	86,948,553	.513	.....	18.31	.....	96
91-94	158,107,117	4,426,999	86,810,175	.549	.....	19.61	.....	103
62-66	161,134,310	4,511,761	151,448,566	.592	33.57	21.15	.....	111
67-73	250,949,000	7,026,572	202,664,570	.674	28.84	24.08	.....	127
74-80	307,566,700	8,611,868	171,713,591	.534	19.94	19.08	.....	100
81-87	290,965,200	8,147,025	167,864,098	.577	.....	20.60	.....	108
88-94	282,789,177	7,918,097	151,306,228	.535	.....	19.11	.....	101
62-94	1,293,404,387	36,215,323	844,997,053	.578	23.33	20.66	.....	109
76-78	127,435,000	3,568,180	65,359,900	.500	18.32	17.86	.....	94
93-95	115,460,798	3,232,902	54,669,486	.473	.....	16.91	.....	89
1862	30,721,821	860,211	17,204,221	.390	20.00	13.78	.....	72
1872	43,964,000	1,230,992	26,378,400	.532	21.43	19.01	.....	100
1895	43,512,681	1,218,335	16,969,946	.390	.....	13.93	.....	73

## KENTUCKY.

62-66	165,906,169	4,645,373	98,448,665	.374	21.19	13.35	a-28.36	114
67-70	219,582,000	6,148,296	122,000,990	.443	19.84	15.83	b-67.72	135
71-74	224,342,000	6,281,576	101,214,930	.404	16.11	14.45	c-83.43	123
75-78	228,922,100	6,409,819	81,080,840	.336	12.65	11.99	.....	104
79-82	277,900,870	7,781,224	132,044,777	.475	.....	16.97	.....	145
83-86	329,408,800	9,223,446	125,630,026	.381	.....	13.62	.....	116
87-90	278,412,000	7,795,536	115,196,455	.414	.....	14.78	.....	126
91-94	287,500,357	8,050,010	119,756,207	.417	.....	14.88	.....	127
62-66	165,906,169	4,645,373	98,448,665	.374	21.19	13.35	.....	114
67-73	395,410,000	11,071,480	196,533,220	.415	17.75	14.82	.....	126
74-80	428,212,070	11,989,938	164,411,049	.367	13.71	13.12	.....	112
81-87	514,373,700	14,402,463	231,682,494	.450	.....	16.09	.....	137
88-94	503,072,357	14,226,026	204,297,462	.402	.....	14.36	.....	123

TABLE II. (c)—Continued.

## KENTUCKY—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER			Percentages.	Index Nos.
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency	Gold.		
62-94	2, 011, 974, 296	56, 335, 280	895, 372, 890	.409	15.89	14.53	.....	124
76-78	168, 722, 100	4, 724, 219	56, 398, 840	.326	11.94	11.64	.....	99
93-95	229, 839, 688	6, 435, 511	84, 479, 696	.368	.....	13.13	.....	112
1862	.....	.....	.....	.....	.....	.....	.....	.....
1872	63, 534, 000	1, 778, 952	23, 507, 580	.328	13.21	11.72	.....	100
1895	93, 939, 331	1, 690, 908	25, 363, 619	.420	.....	15.00	.....	127

## VIRGINIA.

62-66	24, 369, 908	682, 357	17, 790, 033	.479	26.07	16.42	a-10.95	89
67-70	75, 319, 000	2, 108, 932	59, 401, 940	.629	28.17	22.48	b-50.28	122
71-74	76, 094, 000	2, 130, 632	47, 231, 960	.557	22.17	19.88	c-70.36	108
75-78	79, 533, 000	2, 226, 924	37, 745, 840	.450	16.95	16.07	.....	87
79-82	128, 291, 600	3, 592, 165	67, 116, 944	.523	.....	18.68	.....	102
83-86	120, 979, 700	3, 387, 432	62, 350, 730	.515	.....	18.41	.....	100
87-90	143, 578, 000	4, 020, 184	70, 103, 750	.488	.....	17.44	.....	95
91-94	128, 982, 924	3, 611, 522	63, 058, 012	.488	.....	17.46	.....	95
62-66	24, 369, 908	682, 357	17, 790, 033	.459	26.07	16.42	.....	89
67-73	132, 331, 000	3, 705, 268	94, 421, 420	.596	25.48	21.28	.....	110
64-80	163, 802, 600	4, 586, 473	78, 734, 124	.457	17.17	16.33	.....	89
81-87	221, 763, 700	6, 209, 384	118, 401, 450	.534	.....	19.07	.....	104
88-94	234, 880, 924	6, 576, 666	115, 452, 162	.494	.....	17.55	.....	95
62-94	777, 148, 132	21, 760, 148	424, 799, 189	.514	19.52	18.35	.....	100
76-78	58, 200, 000	1, 629, 600	26, 226, 000	.437	16.09	15.69	.....	85
93-95	96, 037, 062	2, 689, 038	41, 561, 362	.433	.....	15.46	.....	84
1862	.....	.....	.....	.....	.....	.....	.....	.....
1872	18, 184, 000	503, 152	10, 546, 720	.514	20.71	18.37	.....	100
1895	32, 607, 158	913, 000	12, 064, 648	.370	.....	13.21	.....	72

## GEORGIA.

62-66	15, 695, 909	439, 486	23, 857, 782	.957	54.29	34.20	a-11.22	141
67-70	114, 831, 000	3, 215, 268	113, 888, 060	.791	35.42	28.27	b-77.40	117
71-74	92, 435, 000	2, 588, 180	81, 413, 680	.790	31.46	28.22	c-83.27	116
75-78	90, 518, 000	2, 534, 504	61, 572, 780	.644	24.29	23.03	.....	95
79-82	98, 929, 140	2, 770, 016	72, 531, 281	.733	.....	26.18	.....	108
83-86	118, 899, 500	3, 329, 197	75, 512, 313	.635	.....	22.68	.....	94
87-90	125, 172, 000	3, 504, 816	77, 195, 944	.617	.....	22.03	.....	91
91-94	139, 643, 012	3, 910, 004	83, 820, 753	.600	.....	21.44	.....	88
62-66	15, 695, 909	439, 486	23, 857, 782	.957	54.29	34.20	.....	141
67-73	182, 772, 000	5, 117, 616	172, 767, 260	.789	33.76	28.19	.....	116
74-80	157, 578, 640	4, 412, 202	113, 684, 516	.690	25.77	24.66	.....	102
81-87	207, 329, 400	5, 805, 223	138, 668, 548	.669	.....	23.89	.....	99
89-94	232, 748, 012	6, 516, 944	140, 814, 487	.605	.....	21.61	.....	89
62-94	796, 123, 961	22, 291, 471	589, 792, 593	.686	26.46	24.51	.....	101



TABLE II. (e)—Continued.

GEORGIA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER			Percentages.	Index Nos.
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency	Gold.		
76-78	70,418,000	1,971,704	44,286,780	.613	22.46	21.90	.....	90
93-95	110,994,493	3,107,846	56,533,918	.509	.....	18.19	.....	75
1862	.....	.....	.....	.....	.....	.....	.....	00
1872	23,777,000	665,756	20,448,220	.679	30.71	24.24	.....	100
1895	42,172,481	1,180,831	17,290,717	.410	.....	14.64	.....	60

## TEXAS.

62-66	20,295,863	568,284	19,078,111	.592	33.57	21.15	a-20.53	163
67-70	88,743,000	2,484,804	70,667,340	.636	28.44	22.70	b-77.77	167
71-74	100,540,000	2,815,120	75,158,190	.670	26.70	23.95	c-85.80	176
75-78	186,396,000	5,219,088	96,494,240	.490	18.49	17.53	.....	130
79-82	192,745,800	5,396,883	135,278,509	.702	.....	25.07	.....	184
83-86	277,055,800	7,757,548	155,385,800	.560	.....	20.03	.....	147
87-90	316,426,000	8,859,928	152,140,552	.480	.....	17.17	.....	126
91-94	274,786,641	7,694,026	143,850,299	.523	.....	18.70	.....	137
62-66	20,295,863	568,284	19,078,111	.592	33.57	21.15	.....	163
67-73	161,267,000	4,515,476	124,813,530	.646	27.64	23.08	.....	161
74-80	310,364,500	8,690,206	182,960,065	.564	21.05	20.14	.....	148
81-87	450,338,600	12,609,481	264,220,384	.586	.....	20.95	.....	154
88-94	514,722,641	14,412,234	256,980,951	.499	.....	17.83	.....	131
62-94	1,456,988,604	40,795,681	848,053,041	.559	20.79	19.95	.....	146
76-78	155,396,000	4,351,088	70,764,240	.444	16.26	15.85	.....	116
93-95	238,415,206	6,675,626	105,312,705	.442	.....	15.77	.....	116
1862	.....	.....	.....	.....	.....	.....	.....	00
1872	27,934,000	782,152	12,011,620	.381	15.36	13.62	.....	100
1895	107,905,565	3,021,356	33,450,725	.310	.....	11.07	.....	81

## CALIFORNIA.

62-66	478,169	13,388	525,985	1.10	.....	39.29	a-1.63	124
67-70	3,624,000	101,472	3,712,500	1.024	.....	36.59	b-2.74	116
71-74	5,491,000	153,748	5,192,300	.946	.....	33.77	c-7.36	107
75-78	8,117,250	227,283	6,869,850	.846	.....	30.23	.....	95
79-82	10,818,700	302,924	8,610,473	.796	.....	28.42	.....	90
83-86	15,366,800	430,270	10,228,720	.666	.....	23.77	.....	75
87-90	17,877,000	500,556	11,290,646	.716	.....	25.56	.....	81
91-94	11,331,562	317,284	7,035,383	.621	.....	22.17	.....	70
62-66	478,169	13,388	525,985	1.10	.....	39.29	.....	124
67-73	7,498,000	209,944	7,320,140	.976	.....	34.87	.....	110
74-80	15,129,050	423,613	12,638,948	.835	.....	29.84	.....	94
81-87	25,493,700	713,824	17,523,555	.687	.....	24.55	.....	78
88-94	24,505,562	686,156	15,457,199	.631	.....	22.53	.....	71
62-94	73,104,481	2,046,925	53,465,857	.727	.....	25.95	.....	82
76-78	6,617,250	185,283	5,264,850	.796	.....	28.42	.....	90
93-95	5,820,414	162,971	3,068,094	.527	.....	18.83	.....	60
1862	478,169	13,389	525,985	.....	.....	.....	.....	124
1872	1,400,000	39,200	1,400,000	.887	.....	35.71	.....	100
1895	2,256,852	63,192	1,196,132	.....	.....	.....	.....	60

TABLE II. (f).

An exhibit, for various years and periods of years from 1862 to 1895, inclusive, of the differences in the average farm or home gold values of Indian Corn in the states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas and California, and the corresponding values in Iowa, together with an exhibit of the fluctuations in said states that have occurred in thirty-five years in those average values by reason of changes in transportation charges and from various local causes of price variations.

Years.	DIFFERENCES.							Average Seven States.
	New York.	Pa.	Va.	Ky.	Ga.	Texas.	Cal.	
62-66.....	15.41	12.27	7.54	4.47	25.32	12.27	30.41	5.51
67-70.....	18.17	14.54	10.19	3.49	15.98	10.41	24.30	4.76
71-74.....	15.75	12.40	9.51	4.97	18.85	14.58	24.40	5.65
75-78.....	13.33	10.16	8.28	4.20	15.24	9.66	22.44	2.28
79-82.....	12.45	8.55	7.21	5.50	14.71	13.60	16.95	3.47
83-86.....	12.30	9.41	8.89	4.10	13.16	10.51	14.25	2.84
87-90.....	10.34	8.31	7.44	4.78	12.03	7.17	15.56	1.69
91-94.....	10.73	8.55	6.40	3.82	10.38	7.64	11.11	1.25
62-66.....	15.41	12.27	7.54	4.47	25.32	12.27	30.41	5.51
67-73.....	17.77	14.05	11.30	4.86	18.23	13.22	24.91	5.93
74-80.....	13.17	10.28	7.81	4.32	15.84	11.37	21.02	3.52
81-87.....	11.96	9.41	7.88	4.90	12.70	9.76	13.36	2.71
88-94.....	10.83	8.83	7.27	4.08	11.33	7.55	12.25	1.58
62-94.....	13.51	10.58	8.27	4.45	14.43	9.87	15.87	3.23
76-78.....	13.46	10.84	8.67	4.62	14.88	8.83	20.69	3.25
93-95.....	9.96	7.96	6.51	4.18	9.24	6.82	9.88	.87
1862.....								
1872.....	16.48	13.31	12.67	6.02	18.54	7.92	25.97	5.11
1895.....	9.64	7.50	6.78	8.57	8.21	4.64	12.50	1.50

## VARIATIONS IN VALUE DUE TO CHANGES IN TRANSPORTATION CHARGES AND OTHER CAUSES.

62-66.....	5.77	4.77	1.14	.93	17.11	7.63	20.53	4.64
67-70.....	8.53	7.04	3.79		7.77	5.77	14.42	3.89
71-74.....	6.11	4.90	3.11	1.48	10.64	9.94	14.52	4.78
75-78.....	3.69	2.66	1.88	.71	7.03	5.10	12.56	1.41
79-82.....	2.81	1.05	.81	1.01	6.50	8.96	7.07	2.60
83-86.....	2.66	1.91	2.49	.61	4.95	5.87	4.37	1.97
87-90.....	.70	.81	1.04	1.29	3.82	2.53	5.68	.82
91-94.....	1.09	1.05		.33	2.17	3.00	1.23	.38
62-66.....	5.77	4.77	1.14	.93	17.11	7.63	20.53	4.64
67-73.....	8.13	6.55	4.90	1.37	10.02	8.58	15.03	5.06
74-80.....	3.53	2.78	1.41	.83	7.63	6.73	11.14	2.65
81-87.....	2.32	1.91	1.48	1.41	4.49	5.12	3.48	1.84
88-94.....	1.19	1.33	.87	.59	3.12	2.91	2.37	.71
62-94.....	3.87	3.08	1.87	.96	6.22	5.23	5.99	2.36
76-78.....	3.82	3.34	2.27	1.13	6.67	4.19	10.81	2.38
93-95.....	.32	.46	.11	.69	1.03	2.18		
1862.....	1.92	1.60					24.72	
1872.....	6.84	5.81	6.27	2.53	10.33	3.28	16.09	4.24
1895.....			.38	5.03			2.62	.63

TABLE II. (g).

An exhibit of the total product in bushels and tons of the Indian corn raised in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency and the average gold and currency farm values of the same per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

Years.	TOTAL PRODUCT IN		Total Value in Dollars. Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel. Gold.	Per Ton.		
					Cur'ney	Gold.	
1862-66 .....	506,809,922	14,190,677	439,663,821	0.547	30.98	19.55	114
1867-70 .....	711,837,000	19,931,436	579,306,840	0.649	29.06	23.18	135
1871-74 .....	726,083,000	20,330,324	472,009,070	0.584	23.23	20.85	121
1875-78 .....	853,391,350	23,894,958	429,668,430	0.478	17.98	17.07	99
1879-82 .....	978,986,790	27,411,630	587,133,928	0.600	.....	21.42	124
1883-86 .....	1,114,713,600	31,211,981	570,073,848	0.511	.....	18.26	106
1887-90 .....	1,134,908,060	31,777,426	560,632,544	0.494	.....	17.65	102
1891-94 .....	1,068,955,136	29,930,744	546,193,107	0.511	.....	18.25	106
1862-66 .....	506,809,922	14,190,677	439,663,821	0.547	30.98	19.55	114
1867-73 .....	1,263,569,000	35,379,932	924,435,120	0.611	26.13	21.82	127
1874-80 .....	1,538,530,240	43,078,847	824,547,811	0.513	19.14	18.32	106
1881-87 .....	1,860,007,500	52,080,210	1,035,451,125	0.557	.....	19.88	115
1888-94 .....	1,926,768,196	53,949,510	960,583,711	0.499	.....	17.81	104
1862-94 .....	7,095,684,858	198,679,176	4,184,681,588	0.540	21.06	19.30	112
1867-94 .....	6,588,874,936	184,488,499	3,745,017,767	0.540	20.30	19.28	112
1867-78 .....	2,291,311,350	64,156,718	1,480,984,340	0.565	23.08	20.17	117
1879-86 .....	2,093,700,390	58,623,611	1,157,207,776	0.553	.....	19.74	115
1887-94 .....	2,203,863,196	61,708,170	1,106,825,651	0.502	.....	17.94	104
1867-78 .....	2,291,311,350	64,156,718	1,480,984,340	0.565	23.08	20.17	117
1879-82 .....	978,986,790	27,411,630	587,133,928	0.600	.....	21.42	124
1883-94 .....	3,318,576,796	92,920,151	1,676,899,499	0.505	.....	18.05	105
1867-80 .....	2,802,099,240	78,458,779	1,748,982,931	0.557	22.29	19.90	115
1881-94 .....	3,786,775,696	106,029,720	1,996,034,836	0.527	.....	18.83	109
1876-78 .....	655,508,350	18,354,234	308,710,610	0.459	16.82	16.41	95
1893-95 .....	843,691,354	23,623,357	370,576,118	0.439	.....	15.69	91
1862 .....	55,273,247	1,547,651	33,618,555	0.422	21.71	15.07	88
1872 .....	198,024,000	5,544,672	107,754,240	0.544	19.41	17.22	100
1895 .....	340,408,238	9,531,431	114,442,164	0.536	.....	12.01	70



TABLE II. (h).

An exhibit for various years and periods of years, from 1862 to 1895 inclusive, of the different average gold farm values and index numbers for the Indian Corn raised in New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas and California, the different averages and index numbers having been obtained by different calculations explained in the table.

## CORN—SEVEN STATES.

Years	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this report. (2)		Allowing for Influence of Changing Freight Rates. (3)	Corresponding to Column.			Average of Indices for Seven States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
62-66	\$19.55	\$20.38	.571	\$15.74	114	121	125	122	113
67-70	23.18	23.07	.646	19.18	135	138	153	134	134
71-74	20.85	21.11	.591	16.33	121	126	130	123	123
75-78	17.07	16.97	.475	15.56	99	101	124	100	101
79-82	21.42	21.14	.592	18.54	124	126	148	120	128
83-86	18.26	18.34	.514	16.37	106	109	130	104	111
87-90	17.65	17.67	.495	16.85	102	105	134	101	106
91-94	18.25	18.29	.512	17.91	106	109	143	103	110
62-66	19.55	20.38	.571	18.02	114	121	125	122	113
67-73	21.82	21.86	.612	17.22	127	130	137	125	111
74-80	18.32	18.32	.513	13.26	106	109	106	106	109
81-87	19.88	19.87	.556	17.22	115	119	137	112	120
88-94	17.81	17.84	.500	16.00	104	106	127	101	107
62-94	19.30	19.30	.540	18.58	112	115	148	110	115
76-78	16.41	16.33	.457	13.95	95	97	111	95	98
93-95	15.69	15.80	.442	15.80	91	94	126	89	90
1862	15.07	.....	.....	.....	88	.....	.....	90	74
1872	.....	16.79	.470	12.55	100	100	100	100	100
1895	12.01	14.49	.406	13.86	70	86	110	78	80

(a). Computed by Sauerbeck's method.

TABLE II. (i).

An exhibit of the total product in bushels and tons of the Indian corn raised in those states of the United States not included in the seventeen whose statistics are given in tables (a) to (h) inclusive, with the total value of the same in currency and the average gold and currency farm values of the same per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

Years.	TOTAL PRODUCT IN		Total Value in Dollars. Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel. Gold.	Per Ton.		
					Currency.	Gold.	
1862-66 .....	2,750,250,329	77,007,008	1,572,474,442	0.378	20.42	13.50	128
1867-70 .....	2,724,018,000	76,272,504	1,654,149,300	0.468	21.56	16.72	158
1871-74 .....	3,137,091,000	87,838,548	1,367,455,590	0.392	15.57	14.01	133
1875-78 .....	4,482,554,550	125,511,528	1,488,936,947	0.309	11.86	11.03	104
1879-82 .....	5,073,355,227	142,053,946	2,198,573,705	0.433	15.48	15.48	147
1883-86 .....	5,802,920,300	162,481,769	1,947,625,532	0.336	11.99	11.99	114
1887-90 .....	5,767,917,060	161,501,678	2,016,508,835	0.350	12.49	12.49	118
1891-94 .....	5,291,567,935	148,163,902	2,008,268,562	0.380	13.55	13.55	128
1862-66 .....	2,750,250,329	77,007,008	1,572,474,442	0.378	20.42	13.50	128
1867-73 .....	5,173,070,000	144,845,960	2,607,709,560	0.410	18.00	14.73	139
1874-80 .....	7,930,124,277	222,043,480	2,886,985,256	0.346	13.00	12.34	117
1881-87 .....	9,237,050,800	258,637,423	3,632,929,648	0.393	14.05	14.05	133
1888-94 .....	9,939,178,995	278,297,012	3,553,894,007	0.358	12.77	12.77	121
1862-94 .....	35,029,674,401	980,830,883	14,253,992,913	0.374	14.53	13.36	127
1867-94 .....	32,279,424,072	903,823,875	12,681,518,471	0.374	14.03	13.34	126
1867-78 .....	10,343,663,550	289,622,580	4,510,541,837	0.376	15.57	13.43	127
1879-86 .....	10,876,275,527	304,535,715	4,146,199,237	0.381	13.55	13.61	129
1887-94 .....	11,059,484,995	309,665,580	4,024,777,397	0.364	13.00	13.00	123
1867-78 .....	10,343,663,550	289,622,580	4,510,541,837	0.376	15.57	13.43	127
1879-82 .....	5,073,355,227	142,053,946	2,198,573,705	0.433	15.48	15.48	147
1883-94 .....	16,862,405,295	472,147,349	5,972,402,929	0.354	12.65	12.65	120
1867-80 .....	13,103,194,277	366,889,440	5,494,694,816	0.372	14.98	13.28	126
1881-94 .....	19,176,229,795	536,934,435	7,186,823,655	0.375	13.38	13.38	127
1876-78 .....	3,375,831,550	94,523,284	1,065,961,327	0.299	11.28	10.68	101
1893-95 .....	4,023,714,803	112,664,013	1,295,876,878	0.322	11.50	11.50	109
1862 .....	526,176,201	14,732,934	169,886,825	0.222	11.53	7.94	75
1872 .....	891,649,000	24,966,772	297,303,260	0.296	11.91	10.56	100
1895 .....	1,779,433,888	40,824,149	436,821,510	0.246	8.77	8.77	83

TABLE II. (j)

An exhibit for various years, and periods of years from 1862 to 1895 inclusive, of the different average gold farm values and index numbers for the Indian Corn raised in the leading seventeen states of the United States, the different average values and index numbers having been calculated by different methods, explained in the table.

Years	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates. Per Ton. (3)	Corresponding to Column —			Average of Indices for Seventeen States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
62-66	13.50	\$13.22	\$0.370	\$11.28	128	132	135	136	129
67-70	16.72	16.62	.465	14.73	153	166	176	162	152
71-74	14.01	13.59	.381	11.81	133	136	141	133	133
75-78	11.03	11.19	.313	10.25	104	112	122	108	111
79-82	15.48	15.52	.435	14.74	147	155	176	146	156
83-86	11.99	12.35	.346	11.39	114	124	136	116	124
87-90	12.49	12.81	.359	12.53	118	128	150	121	129
91-94	13.55	13.80	.386	13.50	128	138	161	129	139
62-66	13.50	13.22	.370	11.28	128	132	135	136	129
67-73	14.73	14.35	.402	12.31	139	144	147	140	137
74-80	12.34	12.50	.350	11.24	117	125	134	119	124
81-87	14.05	14.31	.401	13.61	133	143	163	133	143
88-94	12.77	13.08	.366	12.71	121	131	152	123	132
62-94	13.36	13.36	.375	11.53	127	134	138	127	134
76-78	10.68	10.58	.296	9.33	101	106	112	105	108
93-95	11.50	11.61	.325	11.38	109	116	136	110	117
1862	7.94	7.42	.208	7.06	75	74	84	60	78
1872	10.56	10.00	.280	8.37	.....	.....	.....	100	100
1895	8.77	9.35	.262	9.22	83	94	110	89	96

(n) Computed by Sauerbeck's method.



TABLE II. (k).

An exhibit by years and by certain periods of years from 1862 to 1895, inclusive, of the acres planted to Indian Corn, in the states of the American Union not included in the ten states, the statistics of which are given in Table (c), (called exterior states in this report), together with the total product of corn in said states in bushels and tons, and the total home or farm value of the same in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency.

Year.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars.	Average Value Per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.	Gold.	Cur- rency	Gold.
1862	2,077,833	93,726,394	2,624,339	50,781,308	35,151,902	13.39	54.2	37.5
1863	3,091,248	95,008,166	2,660,229	93,228,237	59,945,757	22.53	98.1	63.0
1864	4,476,744	125,849,127	3,523,775	179,051,325	82,900,763	23.52	142.3	65.8
1865	4,869,486	156,352,688	4,377,876	114,855,546	82,006,859	18.73	73.4	52.4
1866	18,972,534	351,594,498	9,829,046	337,965,326	251,103,237	25.52	96.2	71.4
1867	18,307,163	370,715,000	10,380,020	335,035,610	241,895,711	23.30	90.4	65.2
1868	20,634,692	431,686,000	12,087,208	325,665,620	240,336,422	19.88	75.4	55.6
1869	19,745,529	392,170,000	10,980,760	367,978,700	303,421,161	27.63	93.8	77.3
1870	19,881,390	436,870,000	12,232,360	337,310,190	304,718,948	24.91	77.2	69.7
1871	17,530,740	355,741,000	9,960,748	262,442,080	240,749,313	24.17	73.8	67.6
1872	17,686,256	399,094,000	11,174,632	245,600,270	218,005,639	19.51	61.5	54.6
1873	17,910,108	364,736,000	10,212,608	244,133,880	219,103,882	21.45	66.9	60.0
1874	18,411,959	336,460,500	9,420,894	263,028,540	234,008,269	24.84	78.1	69.5
1875	18,753,842	412,249,000	11,542,412	253,428,130	224,720,293	19.47	61.5	54.5
1876	20,666,864	437,741,500	12,256,762	215,778,570	203,148,642	16.57	49.3	46.4
1877	20,904,233	430,508,000	12,054,224	216,714,900	213,486,265	17.71	50.3	49.5
1878	21,716,500	426,031,550	11,928,883	207,543,828	.....	17.39	48.7	48.7
1879	21,797,050	429,224,790	12,018,294	245,615,918	.....	20.44	57.2	.....
1880	26,494,548	587,388,706	16,446,324	298,430,410	.....	18.15	50.8	.....
1881	27,210,725	386,797,000	10,850,316	316,447,890	.....	29.22	81.8	.....
1882	29,436,487	579,518,500	16,226,518	331,616,666	.....	20.44	57.2	.....
1883	30,648,557	512,620,195	14,358,365	293,707,661	.....	20.46	57.3	.....
1884	31,246,047	543,932,000	15,230,096	298,596,710	.....	19.61	54.9	.....
1885	32,901,060	614,259,000	17,199,252	288,788,340	.....	16.79	47.0	.....
1886	33,597,617	589,194,000	16,497,432	286,128,280	.....	17.34	48.6	.....
1887	33,490,930	612,950,000	17,162,600	321,465,320	.....	18.73	52.4	.....
1888	34,346,738	625,636,000	17,517,808	294,489,600	.....	16.81	47.1	.....
1889	34,260,082	626,885,000	17,552,780	271,421,368	.....	15.46	43.3	.....
1890	33,353,843	548,333,000	15,353,324	332,768,051	.....	21.67	60.7	.....
1891	33,123,259	661,490,000	18,521,720	353,224,929	.....	19.06	53.4	.....
1892	31,006,541	545,513,000	15,274,364	266,226,878	.....	17.43	48.8	.....
1893	30,958,085	526,473,798	14,741,267	255,700,796	.....	17.35	48.6	.....
1894	31,129,560	564,794,586	15,814,248	287,702,589	.....	18.19	50.9	.....
1895	34,168,033	712,112,930	19,939,162	245,129,750	.....	12.30	34.4	.....
62-66	33,487,850	822,330,873	23,025,265	775,881,742	511,113,518	22.19	94.3	62.1
67-70	78,568,774	1,631,441,000	45,680,348	1,365,990,120	1,090,372,242	23.87	83.7	68.8
71-74	71,539,063	1,456,031,500	40,768,882	1,015,204,770	911,867,103	22.36	69.7	62.6
75-78	82,037,439	1,706,510,050	47,782,281	893,465,428	848,899,028	17.76	52.4	49.7
79-82	104,938,810	1,982,908,996	55,521,452	1,192,110,284	.....	21.47	60.1	.....
83-86	128,393,281	2,260,005,195	63,280,145	1,167,220,991	.....	18.44	51.6	.....
87-90	135,451,593	2,413,804,000	67,586,512	1,220,144,339	.....	18.05	50.5	.....
91-94	126,217,445	2,298,271,364	64,351,599	1,162,855,192	.....	18.07	50.6	.....
62-66	33,487,850	822,330,873	23,025,265	775,881,742	511,113,518	22.19	94.3	62.1
67-73	131,695,578	2,751,012,000	77,028,336	2,118,166,350	1,768,231,076	22.95	77.0	64.2
74-80	148,740,996	3,039,564,046	85,667,793	1,700,640,296	1,626,953,625	18.99	55.6	53.2
81-87	218,311,423	3,839,270,695	107,499,579	2,136,750,267	.....	19.88	58.7	.....
88-94	228,178,108	4,099,125,384	114,775,511	2,061,534,211	.....	17.96	50.3	.....
62-94	760,634,255	14,571,302,998	407,996,484	8,792,872,866	8,104,582,697	19.86	60.3	55.6
67-94	727,146,405	13,748,972,125	384,971,219	8,016,991,124	7,593,469,179	19.72	58.3	55.2
67-78	232,145,276	4,793,982,550	134,231,511	3,274,660,318	2,851,138,373	21.24	68.3	59.4
79-86	233,332,091	4,242,914,191	118,801,597	2,359,331,275	.....	19.86	55.6	.....
87-94	261,609,038	4,712,075,384	131,938,111	2,382,999,531	.....	18.06	50.5	.....
67-78	232,145,276	4,793,982,550	134,231,511	3,274,660,318	2,851,138,373	21.24	68.3	59.4
79-82	104,938,810	1,982,908,996	55,521,452	1,192,110,284	.....	21.47	60.1	.....
83-94	390,062,319	6,972,080,579	195,218,256	3,550,220,522	.....	18.19	50.9	.....
67-80	280,436,874	5,810,576,046	162,696,129	3,818,706,646	3,395,184,701	20.86	55.7	58.4
81-94	446,709,531	7,938,396,079	222,275,090	4,198,264,478	.....	18.89	52.9	.....
76-78	63,283,597	1,294,281,000	36,239,869	610,037,258	624,178,735	17.22	49.4	48.2
93-95	96,255,678	1,803,381,314	50,494,677	788,533,135	.....	15.61	43.7	.....

TABLE II. (I).

An exhibit of the total product in bushels and tons of the Indian corn raised in the various states of the Union not included in the seventeen states whose statistics are given in tables (a) to (h) inclusive, with the total value of the same in currency and the average gold and currency values of the same per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

Years.	TOTAL PRODUCT IN		Total Value in Dollars. Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos. 1872 = 100
	Bushels.	Tons.		Per Bushel. Gold.	Per Ton.		
					Currency	Gold.	
1862-66 .....	315,520,951	8,834,588	336,217,921	0.781	38.06	27.88	128
1867-70 .....	919,604,000	25,748,912	786,683,280	0.621	30.55	22.19	102
1871-74 .....	729,948,500	20,438,558	543,195,700	0.672	26.58	24.01	110
1875-78 .....	853,118,700	23,887,323	463,796,998	0.489	19.42	17.46	80
1879-82 .....	1,003,922,206	28,109,822	604,976,356	0.603	.....	21.52	99
1883-86 .....	1,145,291,595	32,068,164	597,147,143	0.521	.....	18.62	86
1887-90 .....	1,278,895,940	35,869,086	659,511,795	0.516	.....	18.42	85
1891-94 .....	1,229,316,248	34,420,855	616,662,085	0.502	.....	17.92	82
1862-66 .....	315,520,951	8,834,588	336,217,921	0.781	38.06	27.88	128
1867-73 .....	1,487,443,000	41,648,404	1,193,731,230	0.632	28.66	22.57	104
1874-80 .....	1,521,033,806	42,588,946	875,992,485	0.536	20.57	19.15	88
1881-87 .....	1,979,263,195	55,419,369	1,101,299,142	0.556	.....	19.87	91
1888-94 .....	2,172,357,188	60,826,001	1,100,950,500	0.507	.....	18.10	83
1862-94 .....	7,475,618,140	209,317,308	4,608,191,278	0.562	22.02	20.08	92
1867-94 .....	7,160,097,189	200,482,720	4,271,973,357	0.552	22.31	19.74	91
1867-78 .....	2,502,671,200	70,074,793	1,793,675,978	0.591	25.60	21.11	97
1879-86 .....	2,149,213,801	60,177,986	1,202,123,499	0.559	.....	19.98	92
1887-94 .....	2,508,212,188	70,229,941	1,276,173,880	0.509	.....	18.17	83
1867-78 .....	2,502,671,200	70,074,793	1,793,675,978	0.591	25.60	21.11	97
1879-82 .....	1,003,922,206	28,109,822	604,976,356	0.603	.....	21.52	99
1883-94 .....	3,653,503,783	102,298,105	1,873,321,023	0.513	.....	18.31	84
1867-80 .....	3,008,476,806	84,237,350	2,069,723,715	0.584	24.57	20.84	96
1881-94 .....	4,151,620,383	116,245,370	2,202,249,642	0.530	.....	18.94	87
1876-78 .....	638,772,700	17,885,635	331,326,688	0.467	18.53	16.69	77
1893-95 .....	959,689,960	26,871,320	417,957,017	.....	.....	15.55	71
1862 .....	38,453,147	1,076,688	17,162,753	0.307	15.94	10.98	50
1872 .....	201,070,000	5,629,960	137,846,030	0.609	24.48	21.76	100
1895 .....	371,704,692	10,407,731	130,687,586	0.352	.....	12.56	58

TABLE II. (m).

An exhibit by years and periods of years from 1862 to 1895, inclusive, of the acres planted to Indian Corn in the United States, and the total product of the same in bushels and tons, its total home or farm value in dollars, currency, the average yield per acre, the average home or farm value per bushel and ton in gold and currency.

Year.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE			
		Bushels.	Tons.		Yield Per Acre in Bushels.	Value Per Bushel in Cts.		Value Per Ton in Dollars, Gold.
						Currency.	Gold.	
1862	14, 273, 714	564, 629, 348	15, 809, 622	187, 049, 578	37.3	33.1	22.8	8.16
1863	15, 312, 441	398, 317, 381	11, 152, 887	278, 089, 609	25.9	69.8	44.8	16.03
1864	17, 438, 752	530, 451, 403	14, 852, 639	527, 718, 183	30.4	99.5	46.0	16.45
1865	18, 990, 180	704, 427, 853	19, 723, 980	324, 168, 698	27.1	46.0	32.8	11.73
1866	34, 306, 538	867, 945, 295	24, 302, 468	691, 666, 295	25.3	63.2	50.6	18.09
1867	32, 620, 249	768, 320, 000	21, 512, 960	610, 948, 399	23.6	80.0	57.4	20.50
1868	34, 887, 246	906, 527, 000	25, 882, 756	569, 512, 460	25.9	62.8	46.3	16.54
1869	37, 103, 245	874, 520, 000	24, 486, 560	658, 532, 700	23.5	75.3	62.0	22.17
1870	38, 646, 977	1, 094, 253, 000	30, 639, 140	601, 839, 030	28.3	54.9	49.6	17.74
1871	34, 091, 137	991, 898, 000	27, 773, 144	478, 275, 900	29.1	48.2	44.2	15.79
1872	35, 526, 836	1, 092, 719, 000	30, 596, 132	435, 149, 290	30.7	39.8	35.3	12.62
1873	39, 197, 148	932, 274, 000	26, 103, 672	447, 183, 020	23.8	48.0	43.0	15.37
1874	41, 036, 918	850, 148, 500	23, 804, 158	550, 043, 080	20.7	62.7	57.5	20.55
1875	44, 841, 371	1, 321, 069, 000	36, 989, 932	555, 445, 930	29.4	42.0	37.2	13.30
1876	49, 033, 364	1, 283, 527, 500	35, 947, 170	475, 491, 210	26.1	37.0	34.8	12.45
1877	50, 369, 113	1, 342, 558, 000	37, 591, 624	480, 643, 400	26.6	35.8	35.2	12.59
1878	51, 535, 009	1, 388, 218, 750	38, 870, 125	441, 153, 405	26.9	31.8	31.7	11.35
1879	53, 085, 450	1, 517, 901, 790	43, 341, 250	580, 486, 217	29.2	.....	37.5	13.39
1880	62, 317, 842	1, 717, 434, 543	48, 088, 167	679, 714, 499	27.6	.....	39.6	14.13
1881	64, 262, 025	1, 194, 916, 000	33, 457, 648	759, 482, 170	18.6	.....	63.6	22.70
1882	65, 659, 546	1, 617, 025, 100	45, 276, 703	783, 867, 175	24.6	.....	48.5	17.31
1883	68, 301, 889	1, 551, 066, 895	43, 429, 873	658, 051, 485	22.7	.....	42.4	15.15
1884	69, 683, 780	1, 795, 528, 000	50, 274, 784	640, 735, 560	23.8	.....	35.7	12.73
1885	73, 130, 150	1, 936, 176, 000	54, 212, 928	635, 674, 630	26.5	.....	32.8	11.72
1886	75, 694, 208	1, 665, 441, 000	46, 632, 348	610, 311, 000	22.0	.....	36.6	13.09
1887	72, 392, 720	1, 456, 161, 000	40, 772, 508	646, 105, 770	20.1	.....	44.3	15.85
1888	75, 672, 763	1, 987, 790, 000	55, 658, 120	677, 561, 580	26.2	.....	34.1	12.17
1889	78, 326, 056	2, 112, 892, 000	59, 160, 976	597, 918, 829	27.0	.....	28.3	10.11
1890	71, 970, 763	1, 489, 970, 000	41, 719, 160	754, 433, 451	20.7	.....	50.6	18.08
1891	76, 201, 615	2, 060, 154, 000	57, 684, 312	836, 439, 228	27.0	.....	40.6	14.50
1892	70, 626, 658	1, 628, 464, 000	45, 596, 992	642, 146, 630	23.1	.....	39.4	14.08
1893	72, 036, 465	1, 619, 496, 131	45, 345, 892	591, 625, 627	22.5	.....	36.6	13.07
1894	62, 582, 269	1, 212, 770, 052	33, 957, 561	554, 719, 162	19.4	.....	45.7	16.33
1895	82, 075, 830	2, 151, 138, 580	60, 231, 880	567, 509, 106	26.3	.....	26.4	9.42
62-66	100, 321, 625	3, 065, 771, 280	85, 841, 596	1, 908, 692, 363	30.5	62.3	39.9	14.25
67-73	143, 157, 717	3, 643, 622, 000	102, 021, 416	2, 440, 832, 580	25.5	66.9	53.4	19.09
71-74	149, 852, 039	3, 867, 039, 500	108, 277, 106	1, 910, 651, 290	25.8	49.4	44.3	15.84
75-78	193, 828, 848	5, 335, 673, 250	149, 398, 851	1, 952, 733, 945	27.2	36.3	34.7	12.41
79-82	245, 324, 863	6, 077, 277, 433	170, 163, 768	2, 808, 550, 061	24.8	.....	46.1	16.45
83-86	286, 810, 027	6, 948, 211, 895	194, 549, 933	2, 544, 772, 675	24.2	.....	36.6	13.08
87-90	298, 362, 302	7, 046, 813, 000	197, 310, 757	2, 676, 020, 630	23.6	.....	37.9	13.56
91-94	281, 449, 907	6, 520, 884, 183	182, 584, 754	2, 624, 930, 647	23.2	.....	40.2	14.38
62-66	100, 321, 625	3, 065, 771, 280	85, 841, 596	1, 998, 692, 363	30.5	62.3	39.9	14.25
67-73	251, 972, 838	6, 660, 513, 000	186, 494, 364	3, 801, 440, 790	26.4	57.1	47.6	17.01
74-80	352, 269, 058	9, 451, 158, 083	264, 632, 426	3, 762, 977, 741	26.8	39.8	38.1	13.65
81-87	489, 124, 318	11, 216, 313, 995	314, 056, 792	4, 734, 228, 790	22.9	.....	42.2	15.07
88-94	507, 419, 489	12, 111, 536, 183	339, 123, 013	4, 654, 844, 507	23.8	.....	38.4	13.72
62-94	1, 701, 107, 328	42, 505, 292, 541	1, 190, 148, 191	18, 862, 184, 191	25.0	41.4	40.9	14.61
67-94	1, 600, 785, 703	39, 439, 521, 261	1, 104, 306, 595	16, 953, 491, 828	24.6	42.9	40.9	14.63
67-78	488, 838, 604	12, 846, 334, 750	359, 697, 373	6, 304, 217, 815	26.3	49.9	42.9	15.33
79-86	532, 131, 890	13, 025, 489, 328	364, 713, 701	5, 348, 322, 736	24.5	.....	41.0	14.66
87-94	579, 812, 209	13, 567, 697, 183	379, 895, 521	5, 300, 951, 277	23.4	.....	39.1	13.95
67-78	488, 838, 604	12, 846, 334, 750	359, 697, 373	6, 304, 217, 815	26.3	49.9	42.9	15.33
79-82	245, 324, 863	6, 077, 277, 433	170, 163, 768	2, 803, 550, 061	24.8	.....	46.1	16.45
83-94	866, 622, 236	20, 515, 909, 078	574, 445, 454	7, 845, 723, 952	23.6	.....	38.2	13.66
67-80	604, 241, 896	16, 111, 671, 083	451, 126, 790	7, 564, 418, 531	25.0	46.9	42.0	15.02
81-94	996, 543, 807	23, 327, 850, 178	653, 179, 805	9, 389, 073, 297	23.4	.....	40.2	14.37
76-78	150, 987, 477	4, 014, 604, 250	112, 408, 919	1, 397, 288, 015	26.5	34.8	33.9	12.11
93-95	216, 694, 564	4, 983, 404, 763	139, 535, 333	1, 713, 853, 895	23.0	.....	34.4	12.29



TABLE II. (n).

An exhibit for the years 1862 to 1895, inclusive, of the average values per bushel and ton in gold, of the Indian corn raised in ten Mississippi Valley states and in the other states of the Union (in table designated as "Exterior States") not included in the group of ten and in the nation; together with the weight in tons and the value in dollars gold of the annual *per capita* product of Indian corn in the United States.

Years.	SIMPLE INDEX NUMBERS.			AVERAGE GOLD VALUE PER BUSHEL IN DOLLARS.			AVERAGE GOLD VALUE PER TON IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862 ...	82	69	65	1.99	.375	.228	7.12	13.39	8.16	.....	.....
1863 ...	162	115	127	.392	.630	.448	14.00	22.53	16.03	.....	.....
1864 ...	165	119	130	.399	.658	.460	14.25	23.52	16.45	.....	.....
1865 ...	113	96	93	.273	.524	.328	9.74	18.73	11.73	.....	.....
1866 ...	151	131	143	.365	.714	.506	13.06	25.52	18.09	.....	.....
1867 ...	207	119	162	.501	.652	.574	17.89	23.30	20.50	.594	12.18
1868 ...	156	102	131	.379	.556	.463	13.52	19.88	16.54	.686	11.38
1869 ...	205	142	176	.496	.773	.620	17.73	27.63	22.17	.648	14.37
1870 ...	150	128	141	.363	.697	.496	12.97	24.91	17.74	.794	14.09
1871 ...	128	124	125	.311	.676	.442	11.11	24.17	15.79	.702	11.09
1872 ...	100	100	100	.243	.546	.353	8.66	19.51	12.62	.753	9.51
1873 ...	132	110	122	.321	.600	.430	11.47	21.45	15.37	.623	9.62
1874 ...	205	127	163	.497	.695	.575	17.74	24.84	20.55	.556	11.43
1875 ...	121	100	105	.295	.545	.372	10.52	19.47	13.30	.841	11.21
1876 ...	119	85	99	.289	.464	.348	10.32	16.57	12.45	.796	9.91
1877 ...	118	91	100	.285	.495	.352	10.18	17.71	12.59	.810	10.21
1878 ...	100	89	90	.243	.487	.317	8.67	17.39	11.35	.816	9.27
1879 ...	123	105	106	.299	.572	.375	10.69	20.44	13.39	.887	11.85
1880 ...	139	93	112	.337	.508	.396	12.05	18.15	14.13	.959	13.55
1881 ...	226	150	180	.548	.818	.636	19.58	29.22	22.70	.652	14.80
1882 ...	180	105	137	.436	.572	.485	15.57	20.44	17.31	.862	14.93
1883 ...	145	105	120	.351	.573	.424	12.53	20.46	15.15	.809	12.25
1884 ...	113	100	101	.273	.549	.357	9.76	19.61	12.73	.915	11.67
1885 ...	108	86	93	.262	.470	.328	9.37	16.79	11.72	.965	11.32
1886 ...	124	89	104	.301	.486	.366	10.76	17.34	13.09	.814	10.63
1887 ...	159	96	126	.385	.524	.443	13.75	18.73	15.85	.695	11.01
1888 ...	116	86	97	.281	.471	.341	10.04	16.81	12.17	.928	11.29
1889 ...	91	79	80	.220	.453	.283	7.85	15.46	10.11	.965	9.75
1890 ...	185	111	143	.448	.607	.506	15.99	21.67	18.08	.666	12.04
1891 ...	142	98	115	.345	.534	.406	12.34	19.06	14.50	.903	13.07
1892 ...	143	89	112	.347	.488	.394	12.40	17.43	14.08	.697	9.81
1893 ...	127	89	103	.308	.486	.366	10.98	17.35	13.07	.679	8.85
1894 ...	170	93	129	.412	.509	.457	14.72	18.19	16.33	.497	8.12
1895 ...	92	63	75	.224	.344	.264	8.00	12.30	9.42	.863	8.12
1862-66	131	114	113	.317	.621	.399	11.34	22.19	14.25	.....	.....
1867-70	176	122	151	.426	.688	.534	15.21	23.87	19.09	.682	13.02
1871-74	92	115	123	.333	.626	.443	11.90	22.36	15.84	.657	10.41
1875-78	114	91	98	.277	.497	.347	9.50	17.76	12.41	.816	10.13
1879-82	162	110	130	.394	.601	.461	14.06	21.47	16.45	.839	13.80
1883-86	121	94	104	.294	.516	.369	10.49	18.44	13.08	.876	11.45
1887-90	130	93	108	.314	.505	.379	11.22	18.05	13.56	.813	11.03
1891-94	143	93	114	.346	.506	.402	12.37	18.07	14.38	.690	9.92
1862-66	131	114	113	.317	.621	.399	11.34	22.19	14.25	.....	.....
1867-73	148	118	135	.359	.642	.476	12.84	22.95	17.01	.687	11.68
1874-80	127	97	108	.309	.532	.381	11.05	18.99	13.65	.811	11.09
1881-87	145	102	119	.352	.557	.422	12.58	19.88	15.07	.817	12.30
1888-94	133	92	109	.322	.503	.384	11.51	17.96	13.72	.756	10.38
1862-94	137	102	116	.332	.556	.409	11.87	19.86	14.61	.....	.....
1867-94	138	101	116	.334	.552	.409	11.92	19.72	14.63	.772	11.30
1867-78	142	109	121	.344	.594	.429	12.27	21.24	15.33	.723	11.09
1879-86	140	102	116	.340	.556	.410	12.15	19.86	14.66	.858	12.58
1887-94	136	93	111	.330	.505	.391	11.77	18.06	13.95	.749	10.45
1867-78	142	109	121	.344	.594	.429	12.27	21.24	15.33	.723	11.09
1879-82	162	110	130	.394	.601	.461	14.06	21.47	16.45	.839	13.80
1883-94	131	93	118	.317	.509	.382	11.33	18.19	13.66	.787	10.75
1867-80	135	103	119	.338	.584	.420	11.73	20.86	15.02	.756	11.36
1881-94	139	97	114	.337	.529	.402	12.05	18.89	14.37	.784	11.27
1876-78	112	88	96	.271	.482	.339	9.69	17.22	12.11	.808	9.79
1893-95	120	80	98	.291	.437	.344	10.39	15.61	12.29	.681	8.36

## CHAPTER III.

## OATS.

## GENERAL UNIFORMITY OF FARM GOLD VALUES.

The first impression that one gains from a look at the graphic plate illustrative of the price movements of oats in the states of the American Union, is that the farm values of oats in the ten states of the Mississippi Valley have not been greatly changed in thirty-three years. The lines on the plate showing the averages for seven-year periods are for the latter portion of the thirty-three years covered by the tables, nearly level with a slight upward tendency. This impression gained by even a glance at the graphic plate for oats is found by a careful and detailed study to be a correct one. The averages for the several groups when the same are corrected to eliminate the effect of shifting grain fields, as has been explained at length in the first and second chapters, tell the same story of a general uniformity of farm gold values for oats in the United States since 1862. The apparent effect upon statistics and general averages of prices of the grain fields shifting to the West, to cheaper and more distant lands, is shown in the following subsidiary table condensed from the larger tables of this chapter.

TABLE A.

A comparative exhibit of the simple and corrected average gold farm values per ton and bushel of the oat crop in the selected ten, seven and seventeen states and in the nation for the various seven-year periods from 1862 to 1894, inclusive:

YEARS.	TEN STATES.			SEVEN STATES.			SEVENTEEN STATES.			THE NATION.		
	Simple Averages, Per Ton.	Corrected Averages.		Simple Averages, Per Ton.	Corrected Averages.		Simple Averages, Per Ton.	Corrected Averages.		Simple Averages, Per Ton.	Corrected Averages.	
		Per Ton.	Per Bushel.		Per Ton.	Per Bushel.		Per Ton.	Per Bush'l.		Per Ton.	Per Bush el.
1862-66	\$16.96	\$17.35	\$0.278	\$29.01	\$25.58	\$0.409	\$20.67	\$19.59	\$0.313	\$21.26	\$20.16	\$0.323
1867-73	18.69	18.02	.288	28.93	30.21	.483	22.99	21.31	.340	23.65	22.37	.358
1874-80	16.69	16.49	.268	25.15	24.88	.398	19.34	18.75	.300	20.41	19.32	.317
1881-87	17.40	17.54	.281	25.80	25.48	.408	19.27	19.68	.315	20.23	20.68	.331
1888-94	17.03	17.18	.275	24.22	23.63	.378	18.33	18.92	.303	19.15	19.64	.314

The corrected values for the ten states show a decline, when the years 1862 to 1866 are compared with 1887 to 1894, of seventeen cents a ton when the simple average shows an increase of four

cents. For the same period the seven states show for the corrected values a decline of \$1.95 when the simple average indicates an increase of twenty-one cents. The seventeen states show a decrease for the corrected values of sixty-seven cents, while the simple average value shows a decline of \$2.34. These figures show that the increase of oat production in the Mississippi Valley was about evenly divided between the older and the newer states. They further indicate that which a study of the crop statistics in detail will prove, that the increase of oat production in thirty-five years has been greater relatively in the newer than in the older states. The corrected averages for the groups of ten and seventeen states show a decided tendency upward in the prices for the last three seven-year periods. This upward movement of oat prices actually dates in the Mississippi Valley with the year 1873, the very point of time from which so many people date a universal fall of prices. In the case of the remaining states of the Union there seems to have been a general decline in oat prices from 1866, when the maximum was realized, until 1878, after which date higher prices prevailed.

The seventeen states included in one table in the thirty-three years ending with 1894 raised 71.5 per cent of the oats of the United States. The corrected price movement of those states will therefore be an approximate measure of the true or corrected price movement for oats in the nation, as it was assumed to be for corn. The prices of the seventeen states have been used as the basis for estimating the corrected values for the nation as they are given in the last column of the foregoing table.

#### PRICES AS AFFECTED BY CHANGING RAILWAY FREIGHT RATES.

The average gold farm value for the two central states of the Mississippi Valley for the past thirty-three years are shown in the following table:

TABLE B.

An exhibit of the average gold farm values per bushel for oats by seven-year periods in the States of Iowa and Illinois from 1862 to 1894, inclusive:

YEARS.	AVERAGE VALUE PER BUSHEL IN CENTS.	
	Iowa.	Illinois.
1862-66.....	23.0	24.2
1867-73.....	23.9	26.9
1874-80.....	21.4	25.6
1881-87.....	24.5	28.0
1888-94.....	25.0	26.9



The general prices realized by the farmers from oats, as from corn and for all the other cereals in the United States, are determined by the prices that prevail in the states of the Mississippi Valley. The prices in other states are the prices of the Mississippi Valley plus the difference in prices caused by varying freight rates. One method of ascertaining the price movement of grain where that movement is but little affected by changing freight rates is, as has been already mentioned, to use the values of such central states as Iowa and Illinois as a test. Using them as such a test, we note a general advance not only from the prices of the year 1872 but over those that prevailed at any period of seven years before that date. With the exception of the period including the low prices that followed the panic of 1874, the average gold values for oats for Iowa have advanced without a break from 1862 to 1892. This price movement in Iowa exhibits the general tendency of prices for oats in the United States so far as they are not affected by changing railway rates. This fact can be noted in the tables by comparing the prices in Iowa, as given above, with the figures found in Tables III. (d), (h), and (j), showing the calculated relative price movement in the groups for the ten, seven, and seventeen states after allowance is made for the influence of changing railway rates upon oat prices. These tables show substantially the same prices for oats in the years 1891 to 1894 as in the war period and in all the years preceding the silver legislation of 1873.

#### INCREASING CULTIVATION OF AND DEMAND FOR OATS.

Turning to the last table in this chapter, there can be found the figures giving the per capita product of oats as the same is calculated from the returns of the agricultural department. These figures show that the amount of oats raised in the United States has increased over fifty per cent faster than population, and that while there was a general fall of average prices from 1865 to 1872, there has been no general fall since the latter year, but rather an advance in the average sum realized per bushel or ton by the farmers from their oat crop. This movement of the oat prices in the face of this enormous relative increase of over fifty per cent in the per capita product has been rendered possible by an increased demand for oats. That increased demand has been caused by two widely different factors. (1) The relative use of horses in the United States increased steadily (as will be shown in subsequent tables) from 1862 until the advent of the electric railway and the general introduction of the bicycle. This increase in the use of horses made one extra market for an increasing oat crop. (2) A second and very powerful factor enabling the farmers to realize an advancing

price since 1872 for a relatively increasing oat crop is found in the increasing market for oats that has accompanied the growing use of oatmeal as an article of human food. Before the year 1870 there were only a comparatively few and small oatmeal mills in the United States. As a rule they made an inferior article of meal. The best oatmeal on the market was imported from Ireland and Scotland. Prices for oatmeal ruled high, and but little use was made in the United States of the oat as an article of human food. There was no export demand for the meal, since no good meal was manufactured. Not far from 1870 a change took place. Many good mills were erected. Oatmeal of an excellent quality was placed upon the market at lower prices, and the home and foreign demand for the same began to grow until the former has now assumed large proportions, and considerable quantities of the meal are shipped abroad. The average product of oats in the United States is at present not far from 2.4 bushels per capita greater than it was in 1867 to 1873. This increased oat crop doubtless finds its market in about equal proportions in the two lines already mentioned; (1) the increased use of horses; (2) the increased home consumption of oatmeal. The decreased demand for horses that has taken place since the introduction of the electric tram car and the use of the bicycle has destroyed one of these factors for holding up the price of oats, but the other remains.

#### CORRECTED FIGURES FOR THE PER CAPITA PRODUCT OF OATS.

In the chapter devoted to corn, attention was called to the decreased average yield per acre of that and most other cereals, as the same was reported by the United States Department of Agriculture. The accompanying tables show such a decrease in the reported yield for oats. To ascertain the actual relative increase in the per capita product of oats in the United States, the figures for such long periods as those for seven years must be corrected to allow for the changed average yield per acre thus reported. The following table presents at once for the war period and for the seven-year periods the average annual yield of oats per acre, the per capita product of oats and its values as they stand in the tables, and also as they appear when proper allowance is made for this change in the reported average yield per acre.

TABLE C.

A comparative exhibit of the apparent decrease in the average yield per acre in bushels of the oat crop of the United States according to the returns of the department of agriculture, together with the annual yield per capita of oats in tons and its value as it appears in Table (n) and as it becomes when proper allowance is made for this apparent decrease in the yield per acre as thus reported:

YEARS.	Average Yield Per Acre in Bushels.	PER CAPITA PRODUCT.			
		As Reported.		As Corrected.	
		Weight in Tons.	Value in Dollars.	Weight in Tons.	Value in Dollars.
1862-66.....	29.1	.....	.....	.....	.....
1867-73.....	28.4	0.110	\$2.60	0.102	\$2.43
1874-80.....	27.6	.124	2.53	.120	2.82
1881-87.....	26.6	.165	3.34	.165	3.40
1888-94.....	24.9	.167	3.20	.177	3.42

According to this exhibit the per capita product of oats slightly increased from 1861 to 1894, and in the last seven years averaged over seventy per cent greater than in the seven years 1867 to 1873. Its value also steadily increased, and the farmers of the United States as the result realized relatively in the past seven years an annual income from oats of about seventy million dollars more than they did in the seven-year period that ended with that year of price controversy, 1873.

#### COMPARISON WITH THE YEAR 1872.

The average gold values of 1872 are taken as the basis for calculating the index numbers. The prices for oats in 1872 were not relatively so low as were those of corn, hence more of the index numbers for oats fall below the 100 line than they did for corn. This is notably the case with the group of seven states and the exterior states not included in the group of ten Mississippi states. But taking the comparatively high price for oats that prevailed in 1872 as the basis, it is found for the group of ten and seventeen states and for the nation that the relative prices for the four and seven years periods ending with 1894 did not fall below those that are made the basis of comparison, the prices of the year 1872.

#### COMPARISON OF DIFFERENT INDEX NUMBERS.

In the introductory chapter were given some typical illustrations of the widely different index numbers that are obtained by different methods of calculating the price movement of an average of many articles or groups of articles. The tables present for the various group summaries index numbers calculated by four different methods, and attention is here called to the two different results shown in Table III. (j) for the selected seventeen states.



TABLE D.

A comparative exhibit for the seven-year periods of the index numbers showing price movements for oats in seventeen selected states:

YEARS.	GROUP INDEX NUMBERS OBTAINED BY	
	Method of this Report.	According to Relative Importance by Sauerbeck's Method.
1862-66 .....	130	107
1867-73 .....	141	126
1877-80 .....	124	111
1881-87 .....	130	120
1888-94 .....	126	118

These index numbers, both calculated with the farm values of 1872 as the basis, show quite different results. The number obtained by the method of this report indicates a decline of three per cent, while those by Sauerbeck's method show an advance of ten per cent. From this it is evident that the method of this report does not exaggerate the upward tendency of American oat prices of the last thirty years. If those averages err it is on the side that fails to show all the increase in grain price and thus does not record fully the depreciation in the purchasing power of gold that has taken place in the nation. The index numbers according to relative importance by Sauerbeck's method would show that the corrected or true price movement for oats is substantially for the United States what it is in the State of Iowa, located in the center of the grain-producing and price-regulating section of the United States and the world. That coincidence between the price movement for the seventeen states as shown by Sauerbeck's method and that for Iowa must incline the student of economics in this case to give the preference to the results obtained by that method rather than by the one of this report.

#### NO SIGNS OF A CHANGING PURCHASING POWER OF GOLD AS A RESULT OF THE LEGISLATION OF 1873.

Whichever method is preferred of ascertaining the price movement, that adopted by this report or that according to relative importance by Sauerbeck's method, this fact is very evident. The farm gold value of oats in the United States afford no evidence of an appreciation of gold as a result of any silver legislation of the United States or Germany since 1873. Rather they indicate that since 1870 gold has slightly depreciated in its purchasing power as the result of the increasing quantities of the precious metals available for monetary purposes.

TABLE III. (a).

An exhibit by states for various years and periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the oats raised in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas; together with the total home or farm value of the same in currency, and the average home or farm value per bushel and ton in gold and currency and simple index numbers showing the percentage which the average gold value each year or period of years was of the average gold value in the same states for the year 1872.

## OHIO.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66 ...	78,534,824	1,256,557	36,452,962	.294	29.01	18.39	a 9.32	114
1867-70 ...	99,023,000	1,584,368	46,423,340	.370	29.20	23.14	b 6.22	144
1871-74 ...	92,886,000	1,486,176	33,285,140	.322	22.40	20.12	c 10.83	125
1875-78 ...	109,598,500	1,753,576	31,351,670	.271	17.88	16.95	.....	105
1879-82 ...	94,645,190	1,514,323	35,859,585	.379	.....	23.68	.....	147
1883-86 ...	122,299,000	1,956,784	36,172,410	.296	.....	18.49	.....	115
1887-90 ...	120,536,000	1,928,576	35,923,906	.298	.....	18.63	.....	116
1891-94 ...	111,266,017	1,780,256	35,845,157	.322	.....	20.13	.....	125
1862-94 ...	828,788,531	13,260,616	291,314,170	.317	21.97	19.85	.....	123
1862-66 ...	78,534,824	1,256,557	36,452,962	.294	29.01	18.39	.....	114
1867-73 ...	174,592,000	2,703,472	71,223,150	.338	25.50	21.17	.....	132
1874-80 ...	173,151,690	2,850,427	56,228,625	.301	19.73	18.84	.....	117
1881-87 ...	195,806,000	3,132,896	65,271,730	.333	.....	20.85	.....	130
1888-94 ...	201,704,017	3,227,264	62,137,703	.308	.....	19.25	.....	120
1876-78 ...	85,848,500	1,373,576	22,801,670	.248	16.60	15.49	.....	101
1893-95 ...	87,783,510	1,404,536	24,114,125	.215	.....	17.17	.....	107
1862 .....	10,630,935	174,895	3,607,208	.227	20.62	14.21	.....	88
1872 .....	27,489,000	439,824	7,971,810	.257	18.13	16.08	.....	100
1895 .....	31,404,493	502,472	6,908,988	.220	.....	13.75	.....	86

## INDIANA.

1862-66 ...	34,866,091	557,857	15,494,398	.282	27.77	17.61	a 6.49	127
1867-70 ...	46,540,000	744,640	20,211,880	.343	27.14	21.44	b 4.97	155
1871-74 ...	47,892,000	766,272	15,923,040	.299	20.78	18.66	c 7.20	135
1875-78 ...	61,507,200	984,115	16,651,140	.257	16.92	16.04	.....	116
1879-82 ...	64,303,488	1,028,856	22,309,790	.347	.....	21.68	.....	156
1883-86 ...	102,022,100	1,632,354	28,067,612	.275	.....	17.19	.....	124
1887-90 ...	101,582,000	1,625,312	28,553,610	.281	.....	17.57	.....	127
1891-94 ...	118,110,210	1,889,763	36,378,821	.308	.....	19.25	.....	139
1862-94 ...	576,823,089	9,229,169	183,590,291	.296	19.89	18.54	.....	134
1862-66 ...	34,866,091	557,857	15,494,398	.282	27.77	17.67	.....	127
1867-70 ...	82,804,000	1,324,864	31,018,600	.310	23.41	19.43	.....	140
1874-80 ...	102,874,488	1,645,992	30,880,610	.287	18.76	17.92	.....	129
1881-87 ...	164,529,300	2,632,469	49,368,322	.300	.....	18.75	.....	135
1888-94 ...	191,749,210	3,067,987	56,828,961	.296	.....	18.52	.....	134
1876-78 ...	43,507,200	696,115	10,711,140	.230	15.39	14.36	.....	108
1893-95 ...	93,796,805	1,500,749	24,907,639	.266	.....	16.60	.....	120
1862 .....	5,028,755	80,460	1,357,764	.186	16.88	11.63	.....	84
1872 .....	13,080,000	209,280	3,270,000	.222	15.63	13.86	.....	100
1895 .....	25,895,595	414,330	5,179,119	.200	.....	12.50	.....	90

Note.—The percentage marked (a) on the column of percentages indicates the ratio which the total weight of oats in any state is of the total weight of oats in all the states in the group. The percentage marked (b) indicates the ratio which the weight of the crop in any given state bears to the total weight of all crops in that state. The percentage expresses this latter ratio of oats for the combined crop of oats, corn and wheat.

TABLE III. (a).—Continued.  
ILLINOIS.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862.....	17,892,200	286,275	4,294,128	.165	15.00	10.34		98
1863.....	19,681,420	314,903	11,021,595	.360	35.00	22.50		214
1864.....	24,273,751	388,380	14,806,988	.282	38.13	17.65		167
1865.....	28,088,197	449,411	6,741,167	.171	15.00	10.71		102
1866.....	30,054,370	480,870	9,917,942	.245	20.62	15.32		145
1867.....	32,158,000	514,528	15,757,420	.357	30.63	22.11		210
1868.....	32,479,000	519,664	12,066,810	.287	24.37	17.96		170
1869.....	35,726,000	571,616	13,218,620	.305	23.12	19.05		181
1870.....	38,502,000	616,032	12,320,640	.289	20.00	18.06		171
1871.....	38,502,000	616,032	10,780,560	.257	17.50	16.05		152
1872.....	43,122,000	689,952	8,193,180	.168	11.87	10.53		100
1873.....	35,360,000	565,760	9,900,800	.251	17.50	15.70		149
1874.....	31,824,000	509,184	14,320,800	.400	28.12	25.00		237
1875.....	75,600,000	1,200,000	21,000,000	.248	17.50	15.51		147
1876.....	48,000,000	768,000	12,480,000	.245	16.25	15.29		145
1877.....	59,200,000	947,200	13,024,000	.217	13.75	13.54		129
1878.....	56,294,790	900,717	10,133,062	.180		11.25		107
1879.....	47,670,400	762,726	12,871,008	.270		16.87		160
1880.....	62,946,510	1,007,144	18,254,488	.290		18.12		172
1881.....	66,094,000	1,057,504	28,420,420	.430		26.87		255
1882.....	99,141,000	1,586,256	31,725,120	.320		20.00		190
1883.....	102,780,000	1,644,480	27,750,600	.270		16.88		160
1884.....	98,153,000	1,570,448	22,575,190	.230		14.38		137
1885.....	107,968,000	1,727,488	25,912,320	.240		15.00		142
1886.....	103,649,000	1,658,384	26,948,740	.260		16.25		154
1887.....	108,866,000	1,741,856	29,393,820	.270		16.88		160
1888.....	137,400,000	2,198,400	31,602,000	.230		14.38		137
1889.....	145,364,000	2,325,824	27,619,208	.190		11.88		113
1890.....	70,821,000	1,133,136	29,036,803	.410		25.63		243
1891.....	111,095,000	1,777,520	31,106,674	.280		17.50		166
1892.....	75,063,000	1,201,008	23,269,518	.310		19.38		184
1893.....	83,842,178	1,341,475	22,637,388	.270		16.88		160
1894.....	109,050,302	1,744,805	31,624,588	.290		18.13		172
1895.....	73,707,130	1,179,314	12,530,212	.170		10.63		101
1862-66...	119,989,938	1,919,839	46,781,820	.242	24.37	15.15	a 24.46	144
1867-70...	138,865,000	2,221,840	53,963,490	.308	24.29	19.23	b 9.81	152
1871-74...	148,808,000	2,380,928	43,195,340	.260	18.14	16.28	c 14.29	184
1875-78...	238,494,790	3,815,917	56,637,062	.223	14.84	13.97		133
1879-82...	275,851,910	4,413,630	91,271,036	.331		20.68		196
1883-86...	412,550,000	6,600,800	103,186,850	.250		15.63		148
1887-90...	462,451,000	7,399,216	117,651,831	.254		15.90		151
1891-94...	379,050,480	6,064,808	108,638,168	.287		17.91		170
1862-94...	2,176,061,118	34,816,978	621,325,597	.269	17.72	17.84		169
1862-66...	119,989,938	1,919,839	46,781,820	.242	24.37	15.15		144
1867-73...	255,849,000	4,033,584	82,838,030	.269	20.24	16.80		159
1874-80...	380,935,700	6,094,971	102,083,358	.256	16.75	16.00		152
1881-87...	686,651,000	10,986,416	192,726,210	.280		17.54		166
1888-94...	732,635,480	11,722,168	196,896,179	.269		16.80		159
1876-78...	163,494,790	2,615,917	35,637,062	.203	13.62	12.71		126
1893-95...	266,599,610	4,265,594	66,792,188	.251		15.66	GFI	
1862.....	17,892,200	286,275	4,294,128	.165	15.00	10.34		98
1872.....	43,122,000	689,952	8,193,180	.168	11.87	10.53		100
1895.....	73,707,130	1,179,314	12,530,212	.171		10.63		101

## MICHIGAN.

1862-66...	31,240,938	499,855	15,122,417	.305	30.25	19.18	a 5.75	108
1867-70...	34,138,000	546,208	17,248,690	.401	31.76	25.09	b 7.81	141
1871-74...	36,194,000	579,104	14,144,820	.351	24.43	21.94	c 16.69	124
1875-78...	53,009,500	849,589	18,732,811	.334	22.05	20.90	.....	118
1879-82...	65,396,470	1,046,344	25,239,786	.386	.....	24.12	.....	136
1883-86...	80,361,300	1,285,781	25,216,615	.314	.....	19.61	.....	111
1887-90...	104,814,000	1,677,024	33,878,194	.323	.....	20.20	.....	114
1891-94...	105,695,702	1,691,131	35,145,220	.332	.....	20.78	.....	117



TABLE III. (a)—Continued.

MICHIGAN—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-94. . .	510,939,710	8,175,036	184,828,553	.339	22.61	21.19	.....	119
1862-66. . .	31,240,938	499,855	15,122,417	.305	30.25	18.18	.....	108
1867-73. . .	61,898,000	990,368	27,276,510	.366	27.54	22.86	.....	129
1874-80. . .	90,635,200	1,450,163	33,135,476	.349	22.85	21.82	.....	123
1881-87. . .	139,299,870	2,228,798	47,516,816	.341	.....	21.32	.....	120
1888-94. . .	187,865,702	3,005,852	61,777,334	.329	.....	20.55	.....	116
1876-78. . .	41,599,300	665,589	13,787,811	.309	20.72	19.33	.....	114
1893-95. . .	70,871,894	1,133,950	21,073,730	.297	.....	18.58	.....	105
1862. . . . .	5,430,797	86,893	1,683,547	.214	19.37	13.35	.....	75
1872. . . . .	9,248,000	147,968	2,959,360	.284	20.00	17.74	.....	100
1895. . . . .	23,265,192	372,243	5,350,994	.230	.....	14.38	.....	81

## WISCONSIN.

1862-66...	75,553,742	1,208,860	33,774,086	.283	27.94	17.71	a 11.34	100
1867-70...	76,188,000	1,219,008	35,935,220	.373	29.48	23.29	b 12.99	131
1871-74...	65,502,000	1,048,032	23,628,930	.324	22.55	20.25	c 29.19	114
1875-78...	112,578,000	1,801,248	29,066,100	.244	16.14	15.30	.....	86
1879-82...	131,087,128	2,097,394	45,913,624	.350	.....	21.89	.....	123
1883-86...	173,876,700	2,782,027	47,107,397	.271	.....	16.93	.....	95
1887-90...	169,239,000	2,707,824	47,314,425	.279	.....	17.47	.....	98
1891-94...	204,470,280	3,271,524	58,447,956	.285	.....	17.87	.....	101
1862-94...	1,008,494,850	16,135,917	321,187,738	.295	19.90	18.43	.....	104
				.283	27.94	17.71	.....	100
1862-66...	75,553,742	1,208,860	33,774,086					
1867-73...	127,355,000	2,037,680	52,970,050	.345	26.00	21.58	.....	122
1874-80...	192,471,728	3,079,548	58,108,416	.288	18.87	18.02	.....	102
1881-87...	274,260,100	4,388,161	80,332,205	.293	.....	18.31	.....	103
1888-94...	338,854,280	5,421,668	96,002,981	.283	.....	17.71	.....	100
1876-78...	85,978,000	1,375,648	20,288,100	.220	14.75	13.76	.....	81
1893-95...	167,570,549	2,681,129	41,308,324	.247	.....	15.41	.....	87
1862.....	13,271,124	212,338	4,512,182	.234	21.25	14.64	.....	83
1872.....	16,546,000	264,736	5,294,720	.284	20.00	17.74	.....	100
1895.....	63,020,269	1,008,324	11,343,648	.180	.....	11.25	.....	63

## MISSOURI.

1862-66...	14,810,544	236,969	6,642,357	.284	28.03	17.77	a 7.02	139
1867-70...	20,868,000	333,888	8,705,580	.329	26.07	20.60	b 5.52	161
1871-74...	59,651,000	954,416	18,980,030	.285	19.89	17.86	c 7.38	140
1875-78...	73,734,000	1,179,744	16,784,120	.216	14.23	13.49	.....	106
1879-82...	93,599,924	1,497,599	31,228,589	.333	.....	20.85	.....	163
1883-86...	120,037,200	1,920,595	30,292,420	.252	.....	15.77	.....	124
1887-90...	135,665,000	2,170,640	34,859,238	.257	.....	16.06	.....	126
1891-94...	106,136,173	1,698,179	29,858,913	.281	.....	17.58	.....	138
1862-94...	624,501,841	9,992,030	177,351,247	.273	17.75	17.04	.....	133
1862-66...	14,810,544	236,969	6,642,357	.284	28.03	17.77	.....	139
1867-73...	67,200,000	1,075,200	21,425,680	.264	19.93	16.54	.....	130
1874-80...	127,796,424	2,044,743	34,396,769	.257	16.82	16.06	.....	126
1881-87...	212,683,700	3,402,987	60,514,470	.284	.....	17.78	.....	139
1888-94...	202,008,173	3,232,131	54,371,971	.269	.....	16.82	.....	132
1876-78...	53,234,000	851,744	11,249,120	.197	13.21	12.32	.....	101
1893-95...	85,022,872	1,360,866	20,135,017	.237	.....	14.80	.....	116
1862.....	4,601,087	73,617	1,242,293	.186	16.88	11.63	.....	91
1872.....	16,850,000	269,600	3,875,500	.204	14.38	12.76	.....	100
1895.....	30,547,699	488,763	5,498,586	.180	.....	11.25	.....	88

TABLE III. (a).—Continued.

IOWA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent-ages.	Index Nos.	
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.			Gold.
1862.....	7,055,583	112,889	1,552,228	.151	13.75	9.46	.....	107
1863.....	7,761,141	124,178	3,026,845	.251	24.38	15.67	.....	177
1864.....	9,313,369	149,014	4,936,086	.246	33.13	15.34	.....	173
1865.....	12,007,380	192,119	3,145,934	.187	16.37	11.69	.....	132
1866.....	12,607,749	201,724	4,917,022	.290	24.37	18.11	.....	204
1867.....	16,250,000	260,000	6,825,000	.303	26.25	18.95	.....	214
1868.....	15,600,000	249,600	5,460,000	.260	21.88	16.25	.....	183
1869.....	19,000,000	304,000	6,650,000	.288	21.87	18.02	.....	203
1870.....	16,340,000	261,440	4,902,000	.271	18.75	16.93	.....	191
1871.....	19,934,000	318,944	4,186,140	.192	13.12	12.03	.....	136
1872.....	19,934,000	318,944	3,189,440	.142	10.00	8.87	.....	100
1873.....	21,130,000	338,080	5,705,100	.242	16.87	15.14	.....	171
1874.....	19,650,000	314,400	7,467,000	.338	23.75	21.11	.....	238
1875.....	28,000,000	448,000	6,720,000	.213	15.00	13.29	.....	150
1876.....	21,250,000	340,000	4,887,500	.216	14.37	13.53	.....	153
1877.....	42,000,000	672,000	8,400,000	.197	12.50	12.30	.....	139
1878.....	38,332,800	613,325	4,983,264	.130	.....	8.12	.....	92
1879.....	37,256,400	596,102	8,568,972	.230	.....	14.38	.....	162
1880.....	49,922,400	798,758	11,482,152	.230	.....	14.37	.....	162
1881.....	42,434,000	678,944	14,427,560	.340	.....	21.25	.....	240
1882.....	52,618,160	841,891	14,783,085	.287	.....	17.92	.....	202
1883.....	68,403,600	1,094,458	17,784,936	.260	.....	16.25	.....	183
1884.....	78,650,000	1,258,400	15,730,000	.200	.....	12.50	.....	141
1885.....	74,718,000	1,195,488	16,437,960	.220	.....	13.74	.....	155
1886.....	78,454,000	1,255,264	18,044,420	.230	.....	14.38	.....	162
1887.....	74,882,000	1,190,112	17,851,680	.240	.....	15.00	.....	169
1888.....	67,090,000	1,073,440	13,418,000	.200	.....	12.50	.....	141
1889.....	99,459,000	1,591,344	15,913,519	.160	.....	10.00	.....	113
1890.....	71,397,000	1,142,352	27,130,903	.380	.....	23.75	.....	268
1891.....	102,577,000	1,641,232	26,669,919	.260	.....	16.25	.....	183
1892.....	95,841,000	1,533,456	24,918,570	.260	.....	16.25	.....	183
1893.....	95,448,231	1,527,172	21,953,093	.230	.....	14.37	.....	162
1894.....	96,556,672	1,544,907	27,035,868	.280	.....	17.51	.....	197
1895.....	182,967,338	2,927,477	25,615,427	.140	.....	8.75	.....	99
1862-66.....	48,745,222	779,924	17,578,115	.230	22.54	14.36	a 16.99	171
1867-70.....	67,190,000	1,075,040	23,837,000	.281	22.17	17.57	b 7.97	188
1871-74.....	80,648,000	1,290,368	20,547,680	.228	15.92	14.28	c 12.61	162
1875-78.....	129,582,800	2,073,325	24,990,764	.184	12.05	11.48	.....	125
1879-82.....	182,230,960	2,915,695	49,261,769	.270	.....	16.89	.....	190
1883-86.....	300,225,600	4,803,610	67,997,316	.226	.....	14.15	.....	160
1887-90.....	312,328,000	4,997,248	74,314,102	.238	.....	14.87	.....	168
1891-94.....	390,422,903	6,246,767	100,577,450	.258	.....	16.10	.....	182
1892-94.....	1,511,373,485	24,181,977	379,104,196	.241	15.68	15.07	.....	169
1862-66.....	48,745,222	779,924	17,578,115	.230	22.54	14.36	.....	171
1867-73.....	128,188,000	2,051,008	36,917,680	.239	18.00	14.96	.....	168
1874-80.....	236,411,600	3,782,585	52,508,888	.214	13.88	13.35	.....	149
1881-87.....	469,659,760	7,514,557	115,059,641	.245	.....	15.31	.....	173
1888-94.....	628,368,903	10,053,903	157,039,872	.250	.....	15.62	.....	176
1876-78.....	101,582,800	1,625,325	18,270,764	.176	11.24	10.99	.....	123
1893-95.....	374,972,241	5,999,556	74,604,388	.199	.....	12.43	.....	140
1862.....	7,055,583	112,890	1,552,228	.152	13.75	9.47	.....	107
1872.....	19,934,000	318,944	3,189,440	.142	10.00	8.87	.....	100
1895.....	182,967,338	2,927,477	25,615,427	.130	.....	8.75	.....	99
MINNESOTA.								
1862-66.....	10,635,995	170,176	5,206,211	.310	30.59	19.39	a 8.41	135
1867-70.....	34,720,000	555,520	16,089,340	.360	28.96	22.88	b 12.21	159
1871-74.....	41,577,000	665,232	14,361,960	.310	21.29	19.39	c 23.88	135
1875-78.....	60,092,000	961,472	17,850,360	.281	18.57	17.60	.....	122
1879-82.....	91,915,425	1,470,647	29,253,213	.318	.....	19.89	.....	138
1883-86.....	145,826,500	2,333,224	35,595,050	.244	.....	15.26	.....	106
1887-90.....	175,706,000	2,811,296	46,720,154	.266	.....	16.62	.....	115
1891-94.....	188,010,269	3,008,164	52,308,868	.278	.....	17.39	.....	121

## STATISTICS OF LABOR.

TABLE III. (a).—Continued.

MINNESOTA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-94. . .	748,483,189	11,975,731	217,385,156	.280	18.15	17.51	.....	122
1862-66. . .	10,635,995	170,176	5,206,211	.310	30.59	19.39	.....	135
1867-73. . .	65,162,000	1,042,592	25,551,900	.325	24.51	20.34	.....	141
1874-80. . .	109,432,425	1,750,919	32,801,173	.286	18.73	17.89	.....	124
1881-87. . .	240,172,500	3,842,760	65,362,210	.272	.....	17.01	.....	118
1888-94. . .	323,080,269	5,169,284	88,463,662	.273	.....	17.11	.....	119
1876-78. . .	47,092,000	753,472	13,690,360	.271	18.17	16.95	.....	123
1893-95. . .	170,417,353	2,726,677	36,983,505	.217	.....	13.56	.....	94
1862.....	2,934,067	46,945	909,561	.214	19.38	13.35	.....	98
1872.....	9,459,000	151,344	2,459,340	.231	16.25	14.41	.....	100
1895.....	77,995,084	1,247,921	10,919,312	.140	.....	8.75	.....	61

## NEBRASKA.

1862-66...	1,009,348	16,149	538,902	.320	33.37	20.02	a 4.36	226
1867-70...	3,470,000	55,520	1,352,000	.308	24.35	19.24	b 6.38	217
1871-74...	7,237,000	115,792	2,169,220	.269	18.73	16.82	c 9.20	190
1875-78...	19,704,500	315,272	3,670,515	.176	11.64	11.03	.....	124
1879-82...	27,838,300	445,413	7,726,342	.277	.....	17.35	.....	196
1883-86...	89,367,000	1,429,872	17,196,030	.192	.....	12.03	.....	136
1887-90...	103,935,000	1,662,960	23,542,541	.226	.....	14.16	.....	160
1891-94...	135,465,985	2,167,456	33,484,378	.247	.....	15.45	.....	174
1862-94...	388,027,133	6,208,434	89,679,928	.229	14.44	14.30	.....	161
1862-66...	1,009,348	16,149	538,902	.320	33.37	20.02	.....	226
1867-73...	8,763,000	140,208	2,549,220	.241	18.18	15.09	.....	170
1874-80...	35,093,200	529,491	7,433,337	.214	14.04	13.41	.....	151
1881-87...	131,125,600	2,098,010	27,458,200	.209	.....	13.09	.....	148
1888-94...	214,035,985	3,424,576	51,700,269	.241	.....	15.10	.....	170
1876-78...	15,329,500	245,272	2,708,015	.165	11.04	10.30	.....	121
1893-95...	83,647,681	1,338,363	17,974,190	.215	.....	13.43	.....	151
1862.....	.....	.....	.....	.142	10.00	8.87	.....	100
1872.....	1,667,000	26,672	266,720	.140	.....	8.75	.....	99
1895.....	39,911,636	638,587	5,587,637	.....	.....	.....	.....	.....

## KANSAS.

1862-66...	715,268	11,444	412,620	.366	36.06	22.86	a 5.86	186
1867-70...	5,671,000	90,736	2,286,630	.318	25.20	19.91	b 5.42	163
1871-74...	27,347,000	437,552	8,866,990	.291	20.26	18.19	c 8.59	149
1875-78...	50,139,000	802,224	9,932,180	.188	12.38	11.74	.....	96
1879-82...	42,132,320	674,117	13,206,146	.313	.....	19.59	.....	160
1883-86...	107,640,000	1,722,240	24,442,130	.227	.....	14.19	.....	116
1887-90...	151,493,000	2,428,888	38,507,380	.254	.....	15.89	.....	130
1891-94...	136,127,177	2,178,035	37,341,818	.274	.....	17.15	.....	141
1862-94...	521,264,765	8,340,236	134,995,894	.....	.....	.....	.....	.....
1862-66...	715,268	11,444	412,620	.214	19.38	13.35	.....	109
1867-73...	25,171,000	402,736	6,994,710	.195	13.75	12.20	.....	100
1874-80...	78,583,520	1,257,336	19,961,396	.176	11.77	10.62	.....	87
1881-87...	169,215,800	2,707,453	43,389,830	.247	.....	10.98	.....	94
1888-94...	247,579,177	3,961,267	64,237,338	.257	16.19	15.42	.....	126
1876-78...	46,609,000	649,744	7,644,980	.366	36.06	22.86	.....	186
1893-95...	84,977,169	1,359,635	20,964,476	.230	17.37	14.42	.....	119
1862.....	6,892	1,550	30,037	.242	15.88	15.17	.....	124
1872.....	6,084,000	97,344	1,338,480	.256	.....	16.03	.....	131
1895.....	30,075,992	481,216	5,112,919	.260	.....	16.22	.....	133



TABLE III. (b).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the differences in the average farm or home gold values of oats per ton in the states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Minnesota, Iowa, Nebraska, and Kansas, and the corresponding values in Iowa, together with an exhibit of the fluctuations in said states that have occurred in thirty-five years in those average values by reason of change in transportation charges and from various local causes of price variation.

YEARS.	DIFFERENCE PER TON.									
	Ohio.	Ind.	Ill.	Mich.	Wis.	Mo.	Minn.	Neb.	Kan.	Average Ten States.
1862-66.....	3.18	2.40	.06	3.97	2.50	2.56	3.18	4.81	7.65	.31
1867-70.....	6.43	4.73	2.52	8.38	6.58	3.89	6.17	2.53	3.20	3.05
1871-74.....	5.77	4.31	1.93	7.59	5.90	3.51	5.04	2.47	3.84	2.50
1875-78.....	5.86	4.95	2.88	9.81	4.21	2.40	6.51	.06	.65	2.69
1879-82.....	6.79	4.79	3.79	7.23	5.00	3.96	3.00	.46	2.70	3.00
1883-86.....	4.33	3.03	1.47	5.45	2.77	1.61	1.10	2.13	.03	1.07
1887-90.....	3.76	2.70	1.03	5.33	2.60	1.19	1.75	.71	.22	.77
1891-94.....	4.03	3.15	1.82	4.68	1.77	1.48	1.29	.65	1.05	.89
1862-66.....	3.18	2.40	.06	3.97	2.50	2.56	3.18	4.81	7.65	.31
1867-73.....	6.23	4.49	1.86	7.92	6.64	1.60	5.40	.15	.52	2.66
1874-80.....	5.58	4.66	2.74	8.56	4.76	2.80	4.63	.15	1.91	2.54
1881-87.....	5.54	3.44	2.23	6.01	3.00	2.47	1.70	2.22	.72	1.68
1888-94.....	3.63	1.90	1.18	4.93	2.09	1.20	1.49	.52	.60	.60
1862-94.....	4.85	3.54	2.84	6.19	3.43	2.04	2.51	.70	1.05	1.84
1876-78.....	5.23	4.04	2.32	9.24	3.42	1.92	6.76	.20	.52	2.13
1893-95.....	4.74	4.17	3.23	6.15	2.98	2.37	1.13	1.00	2.99	1.88
1862.....	4.74	2.16	.87	3.88	5.17	2.16	3.88	.....	3.88	1.32
1872.....	7.21	4.99	1.67	8.87	8.87	3.89	5.54	.....	3.33	3.40
1895.....	5.00	3.75	1.88	5.63	2.50	2.50	.....	.....	1.88	1.37

YEARS.	VARIATION IN VALUES DUE TO CHANGES IN TRANSPORTATION CHARGES AND OTHER CAUSES.									
	Ohio.	Ind.	Ill.	Mich.	Wis.	Mo.	Minn.	Neb.	Kan.	Ten States.
1862-66.....	.....	.50	.....	.09	.73	1.37	2.08	7.03	8.17	.....
1867-70.....	3.25	2.83	2.58	4.50	4.81	2.70	5.07	4.75	3.72	2.74
1871-74.....	2.59	2.41	1.99	3.71	4.13	2.32	3.94	4.69	4.36	2.19
1875-78.....	2.68	3.05	2.94	5.93	2.44	1.21	5.41	2.16	1.17	2.38
1879-82.....	3.61	2.89	3.85	3.35	3.23	2.77	1.90	2.68	3.22	2.60
1883-86.....	1.15	1.13	1.53	1.57	1.00	.42	.....	.09	.55	.76
1887-90.....	.58	.80	1.09	1.45	.83	.....	.65	1.51	.74	.46
1891-94.....	.85	1.25	1.88	.80	.....	.29	.19	1.57	1.57	.58
1862-66.....	.....	.50	.....	.09	.73	1.37	2.08	7.03	8.17	.....
1867-73.....	3.05	2.59	1.92	4.04	4.87	.41	4.30	2.37	.....	2.35
1874-80.....	2.40	2.76	2.80	4.68	2.99	1.61	3.53	2.37	2.43	2.23
1881-87.....	2.36	1.54	2.29	2.13	1.23	1.28	.60	.....	1.24	1.37
1888-94.....	.45	.....	1.24	1.05	.32	.01	.39	1.70	1.12	.29
1862-94.....	1.67	1.64	2.90	2.31	1.66	.85	1.41	1.52	1.57	1.53
1876-78.....	2.05	2.14	2.38	5.36	1.65	.73	5.66	2.02	1.04	1.82
1893-95.....	1.56	2.27	3.29	2.27	1.21	1.18	.03	3.22	3.51	1.57
1862.....	1.56	.26	.93	.....	3.40	.97	2.78	.....	4.40	1.01
1872.....	4.03	3.09	1.73	4.99	7.10	2.70	4.44	.....	3.85	3.09
1895.....	1.82	1.85	1.94	1.75	.73	1.31	.....	.....	2.40	1.06

TABLE III. (c).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the acres sown to oats in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of oats in said states in bushels and tons, and the total home or farm value of the same in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars, Gold.	Average Value Per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Cur'cy.	Gold.
1862	2,899,852	67,241,440	1,075,863	19,188,948	13,221,185	12.29	28.5	19.7
1863	2,756,951	69,325,892	1,109,214	37,380,646	24,035,755	21.67	53.8	34.7
1864	2,600,475	75,711,958	1,211,391	48,985,278	22,080,184	18.80	64.7	30.0
1865	2,821,929	99,244,702	1,587,915	50,191,632	21,556,825	13.57	30.4	21.7
1866	3,132,218	104,577,918	1,673,247	42,257,384	31,397,236	18.76	40.4	30.0
1867	4,414,667	122,681,000	1,962,896	65,189,840	47,067,064	24.04	53.1	38.4
1868	3,949,582	122,337,000	1,957,392	54,148,620	39,907,533	20.39	44.3	32.6
1869	4,302,109	147,089,000	2,353,424	59,843,340	49,310,912	20.95	40.7	33.5
1870	4,672,804	134,566,000	2,153,056	46,971,370	42,415,147	19.69	34.9	31.5
1871	4,354,891	147,580,000	2,361,280	45,414,630	41,645,216	17.64	30.8	28.2
1872	4,846,951	163,479,000	2,615,664	38,818,550	34,432,054	13.16	23.8	21.1
1873	5,362,805	159,250,000	2,548,000	48,379,180	43,396,124	17.02	30.4	27.2
1874	6,170,771	137,433,000	2,198,928	62,490,790	55,554,312	25.27	45.5	40.1
1875	6,951,802	230,255,000	3,684,080	68,877,600	61,025,642	16.56	29.9	26.5
1876	7,472,114	181,259,000	2,900,145	52,150,780	49,073,884	16.92	28.8	27.0
1877	6,955,157	243,240,000	3,891,840	56,516,900	55,669,147	14.30	23.2	22.9
1878	7,166,600	253,776,090	4,060,417	48,121,342	.....	11.67	18.9	18.7
1879	6,953,100	262,762,220	3,564,195	60,415,895	.....	16.95	.....	27.1
1880	8,840,356	261,630,665	4,186,571	78,964,041	.....	18.86	.....	30.2
1881	9,222,100	260,782,000	4,172,512	107,790,250	.....	25.81	.....	41.3
1882	9,977,529	323,796,230	5,180,740	104,099,694	.....	20.09	.....	32.1
1883	11,601,036	333,623,400	6,297,974	108,788,590	.....	17.27	.....	27.6
1884	12,234,723	404,031,000	6,464,496	92,885,780	.....	14.37	.....	23.0
1885	13,445,213	433,930,000	6,942,880	105,340,670	.....	15.18	.....	24.3
1886	13,797,823	422,621,000	6,761,936	108,258,790	.....	16.01	.....	25.6
1887	15,512,942	444,623,000	7,113,968	119,835,890	.....	16.84	.....	26.9
1888	16,399,319	483,547,000	7,736,752	115,936,550	.....	14.98	.....	24.0
1889	16,705,262	548,925,000	8,782,800	102,619,020	.....	11.69	.....	18.7
1890	15,974,809	500,654,000	5,770,464	142,873,921	.....	24.76	.....	39.6
1891	15,273,993	368,711,000	8,130,736	140,669,282	.....	17.30	.....	27.7
1892	17,337,522	459,715,000	7,355,440	132,546,727	.....	18.02	.....	28.8
1893	17,727,214	432,255,965	6,916,095	112,902,298	.....	16.34	.....	26.1
1894	17,463,152	474,613,231	7,593,812	141,818,442	.....	18.69	.....	29.9
1895	18,353,304	578,790,488	9,260,648	94,046,842	.....	10.16	.....	16.3
1862-66	14,211,425	416,101,910	6,657,630	178,003,888	112,891,185	16.96	42.8	27.1
1867-70	17,339,162	526,673,000	8,426,768	226,153,170	178,700,656	21.21	42.9	33.9
1871-74	20,735,418	607,742,000	9,723,872	195,103,150	175,027,708	18.00	32.1	28.8
1875-78	28,545,673	908,530,090	14,536,482	225,636,722	213,890,015	14.71	24.8	23.5
1879-82	34,993,085	1,069,001,115	17,104,018	351,269,880	.....	20.54	.....	32.9
1883-86	51,078,795	1,654,205,400	26,467,286	415,273,830	.....	15.69	.....	25.1
1887-90	64,592,332	1,837,749,000	29,403,984	481,265,381	.....	16.36	.....	26.2
1891-94	67,801,881	1,874,755,196	29,996,083	528,026,749	.....	17.60	.....	28.2
1862-66	14,211,425	416,101,910	6,657,630	178,003,888	112,891,185	16.96	42.8	27.1
1867-70	13,908,809	996,982,000	15,951,712	358,765,530	298,174,050	18.69	36.0	29.9
1874-80	50,509,900	1,530,385,975	24,456,176	427,537,448	408,824,263	16.69	27.9	26.7
1881-87	55,791,366	2,683,406,630	42,934,506	746,999,664	.....	17.40	.....	27.8
1888-94	116,881,271	3,267,881,196	52,286,069	889,456,240	.....	17.03	.....	27.2
1862-94	299,297,771	8,894,757,711	142,316,123	2,600,762,770	2,456,345,402	17.26	29.2	27.6
1867-94	285,086,346	8,478,658,801	135,658,493	2,422,758,882	2,343,454,217	17.27	28.6	27.6
1867-78	66,620,253	2,042,945,090	32,687,122	646,923,042	567,618,377	17.37	31.7	27.8
1879-86	86,071,880	2,723,206,515	43,571,304	766,543,710	.....	17.54	.....	28.1
1887-94	132,394,213	3,712,504,196	59,400,067	1,009,292,130	.....	16.99	.....	27.2
1867-78	66,620,253	2,042,945,090	32,687,122	646,923,042	567,618,377	17.37	31.7	27.8
1879-82	34,993,085	1,069,001,115	17,104,018	351,269,880	.....	20.54	.....	32.9
1883-94	183,473,008	5,365,709,596	85,867,353	1,424,565,960	.....	16.59	.....	26.6
1867-80	82,413,709	2,527,367,975	40,437,888	786,302,978	706,998,313	17.48	31.1	28.0
1881-94	202,672,637	5,951,287,826	95,220,605	1,636,455,904	.....	17.18	.....	27.5
1876-78	21,593,871	678,275,000	10,852,409	156,789,022	152,864,373	14.09	23.1	22.5
1893-95	53,545,670	1,485,659,654	23,770,555	348,857,582	.....	14.68	.....	23.5

TABLE III. (d).

An exhibit for various years and periods of years, from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the oats raised in Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations, explained in the table

Years.	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted by this Report. (2)		Allowing for Influence of Changing Freight Rates. Per Ton. (3)	Corresponding to Column —			Average of Index Numbers for Ten States.	According to Relative Importance (a)
		Per Ton.	Per Bush		(1)	(2)	(3)		
1862-66 .	\$16.96	\$17.35	\$0.278	\$17.35	129	161	226	145	124
1867-70 .	21.21	20.55	.329	17.81	161	191	232	164	157
1871-74 .	18.00	17.75	.284	15.56	137	165	202	143	137
1875-78 .	14.71	14.45	.231	12.07	111	134	157	113	113
1879-82 .	20.54	20.55	.329	17.86	156	191	232	161	160
1883-86 .	15.69	15.86	.254	15.10	117	147	196	124	126
1887-90 .	16.36	16.51	.264	16.05	124	153	200	131	131
1891-94 .	17.60	17.84	.285	17.26	134	165	224	141	142
1862-66 .	16.96	17.35	.278	17.35	129	161	226	145	124
1867-73 .	18.69	18.02	.288	15.67	142	167	204	141	140
1874-80 .	16.69	16.49	.264	14.26	127	133	185	130	129
1881-87 .	17.40	17.54	.281	16.17	132	163	210	136	139
1888-94 .	17.03	17.18	.275	16.89	129	159	220	136	137
1862-94 .	17.26	17.26	.277	15.73	131	160	205	137	136
1876-78 .	14.09	13.38	.214	11.56	107	124	150	109	108
1893-95 .	14.68	15.10	.242	13.53	112	140	176	120	119
1862 ....	12.29	.....	.....	.....	93	.....	.....	93	90
1872 ....	13.16	10.78	.172	7.69	100	100	100	100	100
1895 ....	10.16	12.72	.204	11.63	77	118	152	86	84

(a) Computed by Sauerbeck's method.



TABLE III. (e).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the oats raised in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency and the average home or farm value per bushel and ton in gold and currency and simple index numbers showing the percentage which the average gold value each year or periods of years was of the average gold value in the same states for the year 1872.

## NEW YORK.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER		Percent-ages.	Index Nos.	
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency.			Gold.
1862	43,968,916	703,502	20,225,701	.317	28.75	19.81	81	
1863	43,968,916	703,503	30,778,241	.450	43.75	28.13	115	
1864	35,724,746	571,596	33,581,261	.485	58.74	27.20	92	
1865	48,675,030	778,801	25,067,671	.368	32.19	22.98	114	
1866	54,029,350	864,470	32,937,903	.453	38.12	28.33	116	
1867	38,000,000	608,000	28,880,000	.549	47.50	34.30	141	
1868	25,000,000	400,000	18,500,000	.545	46.25	34.09	140	
1869	31,250,000	500,000	17,500,000	.461	35.00	28.84	119	
1870	29,646,000	474,336	17,194,680	.524	36.25	32.73	134	
1871	32,610,000	521,760	16,631,100	.468	31.88	29.23	120	
1872	31,305,000	500,880	13,774,200	.390	27.50	21.39	100	
1873	27,548,000	440,768	11,845,840	.386	26.88	24.11	99	
1874	30,302,000	484,832	17,272,140	.507	35.63	31.68	130	
1875	36,500,000	584,000	16,060,000	.390	27.50	24.37	100	
1876	40,025,000	640,400	16,810,500	.395	26.25	24.70	101	
1877	48,000,000	768,000	16,800,000	.345	21.88	21.55	88	
1878	45,080,000	721,280	13,073,200	.290		18.13	74	
1879	39,928,000	638,848	15,971,200	.400		25.00	103	
1880	40,004,318	640,069	17,601,900	.440		27.50	113	
1881	38,160,000	610,560	18,316,800	.480		30.00	123	
1882	40,068,000	641,088	18,030,600	.450		28.13	115	
1883	42,071,400	673,143	16,828,560	.400		25.00	103	
1884	41,145,000	658,320	14,400,750	.350		21.87	90	
1885	38,676,000	618,816	13,923,360	.360		22.50	92	
1886	40,223,000	643,568	14,078,050	.350		21.88	90	
1887	33,208,000	531,328	12,286,960	.370		23.13	95	
1888	40,570,000	649,120	15,010,900	.370		23.13	95	
1889	36,099,000	576,144	11,522,925	.320		20.00	82	
1890	23,913,000	382,608	11,956,420	.500		31.25	128	
1891	41,894,000	670,304	15,919,908	.380		23.75	97	
1892	38,729,000	619,664	15,104,358	.390		24.38	100	
1893	30,208,728	483,340	9,062,618	.390		18.75	77	
1894	30,320,758	485,132	11,825,096	.390		24.37	100	
1895	45,666,354	730,662	12,786,579	.280		17.50	72	
1862-66	226,367,018	3,621,872	142,610,777	.405	39.37	25.31	a 37.63	104
1867-70	123,896,000	1,982,336	82,074,680	.520	41.40	32.50	b 7.46	133
1871-74	121,765,000	1,948,240	59,523,089	.439	30.55	27.43	c 40.43	112
1875-78	169,005,000	2,713,680	62,743,700	.352	23.12	21.99		90
1879-82	158,160,318	2,530,565	69,920,500	.442		27.63		113
1883-86	162,115,400	2,593,847	59,230,720	.365		22.84		97
1887-90	133,700,000	2,139,200	50,777,205	.380		23.74		94
1891-94	141,152,486	2,258,440	51,911,980	.367		22.99		94
1862-66	226,367,018	3,621,872	142,610,777	.405	39.37	25.31		104
1867-73	215,359,000	3,445,744	124,325,620	.476	36.08	29.75		118
1874-80	279,839,318	4,477,429	113,588,940	.388	25.37	24.25		99
1881-87	273,551,400	4,376,823	107,865,080	.394		24.64		101
1888-94	241,644,486	3,866,312	90,402,223	.365		22.81		94
1862-94	1,236,761,222	19,788,180	578,792,642	.406	29.25	25.39		104
1867-94	1,010,394,204	16,166,308	436,181,865	.405	26.98	25.32		104
1876-78	133,105,000	2,129,680	46,683,700	.342	21.92	21.37		88
1893-95	106,195,840	1,639,133	33,674,293	.317		19.82		81
1862	43,968,916	703,503	20,225,701	.320	28.75	19.81		81
1872	31,305,000	500,880	13,774,200	.390	27.50	24.39		100
1895	45,666,354	730,662	12,786,579	.280		17.50		72

TABLE III. (e).—Continued.

## PENNSYLVANIA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER ₧			Percent- ages.	Index Nos.
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency.	Gold.		
1862-66 ..	207,651,422	3,322,423	118,882,525	.363	35.78	22.68	a 36.61	95
1867-70 ..	197,297,000	3,156,752	113,821,840	.456	36.06	28.49	b 10.33	119
1871-74 ..	119,926,000	1,918,816	57,558,000	.431	30.00	26.94	c 26.59	113
1875-78 ..	145,828,400	2,333,254	48,695,668	.317	20.87	19.79	.....	83
1879-82 ..	141,552,920	2,264,846	59,070,644	.417	.....	26.08	.....	109
1883-86 ..	145,290,200	2,324,787	52,732,150	.363	.....	22.68	.....	95
1887-90 ..	125,648,000	2,010,368	44,755,188	.356	.....	22.26	.....	93
1891-94 ..	120,205,838	1,923,294	45,012,489	.374	.....	23.40	.....	98
1862-66 ..	207,651,422	3,322,423	118,882,525	.363	35.78	22.68	.....	95
1867-73 ..	291,616,000	4,665,856	156,271,710	.440	33.49	27.47	.....	117
1874-80 ..	239,688,220	3,835,012	88,732,027	.354	23.14	22.10	.....	93
1881-87 ..	252,520,300	4,040,324	98,746,915	.391	.....	24.44	.....	103
1888-94 ..	211,932,838	3,390,925	.....	.367	.....	22.97	.....	96
1862-94 ..	1,203,408,780	19,254,540	540,528,504	.386	28.07	24.16	.....	101
1876-78 ..	113,328,400	1,813,254	35,370,668	.304	19.51	19.02	.....	80
1893-95 ..	93,364,149	1,493,826	30,541,349	.327	.....	20.45	.....	86
1862 ....	34,233,936	547,743	12,666,556	.250	23.12	15.93	.....	67
1872 ....	31,545,000	504,720	13,564,350	.381	26.88	23.84	.....	100
1895 ....	36,536,311	584,581	9,864,804	.270	.....	16.87	.....	71

## KENTUCKY.

1862-66 ..	14,815,320	237,045	8,373,092	.358	35.32	22.39	a 6.84	82
1867-70 ..	22,990,000	367,840	11,005,600	.378	29.92	23.64	b 4.32	97
1871-74 ..	24,305,000	388,880	10,755,440	.397	27.66	24.84	c 5.32	81
1875-78 ..	28,820,000	461,120	10,205,600	.336	22.13	20.98	.....	77
1879-82 ..	25,434,720	406,956	10,232,996	.402	.....	25.15	.....	93
1883-86 ..	35,208,900	563,342	11,950,043	.339	.....	21.21	.....	78
1887-90 ..	30,711,000	491,376	10,130,230	.300	.....	20.61	.....	76
1891-94 ..	42,383,503	678,136	15,189,418	.358	.....	22.40	.....	82
1862-66 ..	14,815,320	237,045	8,373,092	.358	35.32	22.39	.....	82
1867-73 ..	43,003,000	688,048	19,400,440	.365	28.20	22.82	.....	86
1874-80 ..	44,825,320	717,205	16,853,256	.349	23.50	21.81	.....	83
1881-87 ..	57,777,300	924,437	20,903,963	.362	.....	22.61	.....	83
1888-94 ..	64,247,503	1,027,960	22,311,668	.347	.....	21.70	.....	80
1862-94 ..	224,668,443	3,594,695	87,842,419	.360	24.44	22.51	.....	83
1876-78 ..	22,620,000	361,920	7,353,600	.317	20.32	19.81	.....	73
1893-95 ..	36,543,961	584,703	11,571,006	.317	.....	19.79	.....	73
1862 ..	.....	.....	.....	.....	.....	.....	.....	.....
1872 ....	6,767,000	108,272	3,315,830	.435	30.63	27.17	.....	100
1895 ....	13,252,458	211,639	3,445,639	.260	.....	16.28	.....	60

## VIRGINIA.

1862-66 ..	10,245,156	163,922	4,610,320	.285	28.13	17.83	a 6.06	70
1867-70 ..	28,288,000	452,608	16,548,000	.462	36.56	28.88	b 7.37	113
1871-74 ..	19,454,000	311,264	9,369,290	.432	30.11	27.04	c 10.31	106
1875-78 ..	29,078,500	465,256	11,110,690	.362	23.88	22.64	.....	89
1879-82 ..	21,441,640	343,066	9,461,852	.441	.....	27.58	.....	108
1883-86 ..	29,934,600	478,954	12,113,512	.404	.....	25.29	.....	99
1887-90 ..	34,956,000	559,296	12,882,898	.368	.....	23.03	.....	90
1891-94 ..	25,867,944	413,887	9,777,516	.378	.....	23.62	.....	93

TABLE III. (e).—Continued.

VIRGINIA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER			Percent- ages.	Index Nos.
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Cur'ncy.	Gold.		
1862-66 ..	10,245,156	163,922	4,610,320	.285	28.13	17.83	.....	70
1867-73 ..	43,155,000	690,480	23,440,310	.448	33.95	28.00	.....	111
1874-80 ..	45,319,080	725,105	18,189,274	.383	25.09	23.96	.....	90
1881-87 ..	50,817,660	813,083	20,857,010	.410	.....	25.65	.....	101
1888-94 ..	49,728,944	795,663	18,777,164	.378	.....	23.60	.....	90
1862-94...	199,265,840	3,188,253	85,874,078	.395	26.93	24.70	.....	91
1876-78 ..	23,578,500	377,256	8,415,690	.348	22.31	21.75	.....	85
1893-95 ..	21,904,005	350,464	7,368,158	.336	.....	21.02	.....	82
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	4,089,000	65,424	1,880,940	.403	28.75	25.50	.....	100
1895 .....	8,125,061	130,001	2,437,518	.300	.....	18.75	.....	70

## GEORGIA.

1862-66 ..	985,454	15,767	985,453	.634	62.50	39.62	a 4.46	86
1867-70 ..	4,823,000	77,168	4,187,980	.686	54.27	42.87	b 8.16	93
1871-74 ..	12,626,000	202,016	9,728,020	.692	48.15	43.23	c 8.77	94
1875-78 ..	22,254,280	356,069	14,904,854	.634	41.86	39.68	.....	86
1879-82 ..	25,823,500	413,176	17,306,425	.670	.....	41.88	.....	91
1883-86 ..	24,984,700	399,755	14,074,322	.563	.....	35.21	.....	77
1887-90 ..	26,488,000	423,808	14,566,369	.549	.....	34.37	.....	75
1891-94 ..	28,803,263	460,852	15,481,291	.537	.....	33.59	.....	73
1862-66 ..	985,454	15,767	985,453	.634	62.50	39.62	.....	86
1867-73 ..	12,889,000	206,224	9,903,200	.638	48.02	39.86	.....	87
1874-80 ..	39,745,980	635,936	27,401,969	.665	43.09	41.58	.....	89
1881-87 ..	44,920,500	718,728	26,981,952	.601	.....	37.54	.....	82
1888-94 ..	48,247,263	771,956	25,962,140	.538	.....	33.63	.....	73
1862-94 ..	146,788,197	2,348,611	91,234,714	.598	38.85	37.41	.....	81
1876-78 ..	18,154,280	290,468	11,255,854	.604	38.75	37.78	.....	82
1893-95 ..	22,154,311	354,469	11,044,226	.499	.....	31.16	.....	68
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	1,814,000	29,024	1,505,620	.736	51.88	46.02	.....	100
1895 .....	6,679,048	106,865	3,072,362	.460	.....	28.76	.....	62

## TEXAS.

1862-66 ..	1,084,478	17,352	932,651	.545	53.75	34.08	a 6.59	76
1867-70 ..	4,424,000	70,784	3,792,170	.677	53.57	42.32	b 6.61	94
1871-74 ..	3,593,000	57,488	3,109,290	.777	54.09	48.57	c 7.29	108
1875-78 ..	15,001,500	241,464	7,577,430	.476	31.38	29.75	.....	66
1879-82 ..	29,211,840	467,389	16,119,150	.552	.....	34.49	.....	77
1883-86 ..	45,596,300	729,541	20,203,453	.443	.....	27.69	.....	62
1887-90 ..	51,655,000	826,480	19,831,031	.384	.....	23.99	.....	53
1891-94 ..	65,936,042	1,054,977	27,284,499	.414	.....	25.86	.....	57
1862-66 ..	1,084,478	17,352	932,651	.545	53.75	34.08	.....	76
1867-73 ..	6,899,000	110,384	5,982,340	.717	54.01	44.83	.....	100
1874-80 ..	27,108,540	433,737	14,164,103	.505	32.66	31.55	.....	69
1881-87 ..	76,102,100	1,217,634	35,186,455	.462	.....	28.90	.....	64
1888-94 ..	105,398,042	1,686,368	42,604,120	.404	.....	25.26	.....	56
1862-94 ..	216,592,160	3,465,475	98,849,674	.442	28.33	27.62	.....	62
1876-78 ..	13,481,500	215,704	6,418,230	.464	29.75	29.01	.....	64
1893-95 ..	49,353,220	789,651	17,796,890	.361	.....	22.54	.....	50
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	783,000	12,528	634,230	.719	50.63	44.91	.....	100
1895 .....	14,569,178	233,107	3,787,986	.260	.....	16.25	.....	36



TABLE III. (e).—Continued.

## CALIFORNIA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER		Percent- ages.	Index Nos.	
	Bushels.	Tons.		Bushel, Gold.	Ton.			
					Currency.			Gold.
1862-66 ..	1,057,592	16,922	1,057,592	1.000	.....	62.50	a 1.81	135
1867-70 ..	5,481,000	87,696	3,502,790	.639	.....	39.94	b 1.27	86
1871-74 ..	8,305,000	132,880	6,185,420	.744	.....	46.55	c 3.42	101
1875-78 ..	10,650,000	170,400	7,604,000	.714	.....	44.62	.....	97
1879-82 ..	9,615,200	153,843	6,165,562	.641	.....	40.08	.....	86
1883-86 ..	8,398,600	134,377	3,906,408	.465	.....	29.07	.....	63
1887-90 ..	7,904,000	126,464	4,336,063	.549	.....	34.29	.....	74
1891-94 ..	7,966,565	127,465	3,722,479	.467	.....	29.20	.....	63
1862-66 ..	1,057,592	16,922	1,057,592	1.000	.....	62.50	.....	135
1867-73 ..	11,430,000	182,880	8,062,570	.705	.....	44.09	.....	95
1874-80 ..	19,525,200	312,405	13,568,562	.695	.....	43.43	.....	94
1881-87 ..	13,690,600	219,049	7,006,728	.512	.....	31.99	.....	69
1888-94 ..	13,674,565	218,793	6,784,862	.496	.....	31.01	.....	67
1862-94 ..	59,377,957	950,047	36,480,314	.614	.....	38.39	.....	83
1876-78 ..	8,550,000	136,800	6,092,000	.712	.....	44.53	.....	96
1893-95 ..	5,253,611	84,058	2,136,800	.407	.....	25.42	.....	55
1862 ....	1,057,592	16,921	1,057,592	1.000	.....	62.50	.....	135
1872 ....	2,250,000	36,000	1,665,000	.740	.....	46.25	.....	100
1895 ....	1,690,046	27,041	659,118	.390	.....	24.37	.....	53

TABLE III. (f).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the differences in the average farm or home gold values of oats per ton in the states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas and California, and the corresponding values in Iowa, together with an exhibit of the fluctuations in said states that have occurred in thirty-five years in those average values by reason of change in transportation charges and from various local causes of price variation.

Years.	DIFFERENCES PER TON.							Average Seven States
	New York.	Pa.	Va.	Ky.	Ga.	Texas.	Cal.	
1862-66 .....	10.10	7.47	2.62	7.18	24.41	18.87	47.29	3.35
1867-70 .....	15.79	11.78	12.17	6.93	26.16	25.61	23.23	7.72
1871-74 .....	13.08	12.59	12.69	10.49	28.88	34.22	32.20	8.13
1875-78 .....	10.90	8.70	11.55	9.89	28.59	18.66	33.53	6.61
1879-82 .....	10.74	9.19	10.69	8.26	24.99	17.60	23.19	4.29
1883-86 .....	8.68	8.52	11.13	7.05	21.05	13.53	14.91	2.62
1887-90 .....	8.87	7.39	8.16	5.74	19.50	9.12	19.42	1.73
1891-94 .....	6.89	7.30	7.52	6.30	17.49	9.76	13.10	.79
1862-66 .....	10.10	7.47	2.62	7.18	24.41	18.87	47.29	3.35
1867-73 .....	14.81	12.86	13.24	8.46	24.92	29.89	29.15	8.25
1874-80 .....	10.99	8.84	10.70	9.18	27.59	17.93	30.17	4.60
1881-87 .....	9.33	9.13	10.34	7.30	22.23	13.59	16.68	3.53
1888-94 .....	7.19	7.35	7.98	6.08	18.01	9.64	15.39	.99
1862-94 .....	10.39	9.16	9.70	7.51	22.41	12.62	23.39	3.60
1876-78 .....	10.41	8.06	10.79	8.85	26.82	18.09	33.57	4.10
1893-95 .....	7.39	8.02	8.59	7.36	18.73	10.11	12.99	1.46
1862 .....	10.34	6.46	.....	.....	.....	.....	53.03	2.02
1872 .....	15.52	14.97	16.63	18.30	37.15	36.04	32.15	9.45
1895 .....	8.75	8.12	10.00	7.53	20.01	7.50	15.62	1.66

YEARS.	FLUCTUATIONS IN FARM GOLD VALUES PER TON, CAUSED BY CHANGING FREIGHT RATES BETWEEN IOWA AND THE VARIOUS STATES.							
	New York.	Pa.	Va.	Ky.	Ga.	Texas.	Cal.	Seven States.
1862-66 .....	3.21	1.01	.....	1.44	6.92	11.37	34.30	2.56
1867-70 .....	8.90	5.32	9.55	1.19	8.67	18.11	10.24	6.93
1871-74 .....	6.19	6.13	10.07	4.75	11.39	26.72	19.21	7.34
1875-78 .....	4.01	2.24	8.93	4.15	11.10	11.16	20.54	5.82
1879-82 .....	3.85	2.73	8.07	2.52	7.50	10.10	10.20	3.50
1883-86 .....	1.79	2.06	8.51	1.31	3.56	6.03	1.92	1.83
1887-90 .....	1.98	.93	5.54	.....	2.01	1.62	6.43	.94
1891-94 .....	.....	.84	4.90	.56	.....	2.26	.11	.....
1862-66 .....	3.21	1.01	.....	1.44	6.92	11.37	34.30	2.56
1867-73 .....	7.92	6.40	10.62	2.72	7.43	22.39	16.16	7.46
1874-80 .....	4.10	2.38	8.08	3.44	10.40	10.43	17.18	3.81
1881-87 .....	2.44	2.67	7.72	1.56	4.74	6.09	3.69	2.74
1888-94 .....	.30	.89	5.36	.34	.52	2.14	2.40	.20
1862-94 .....	3.50	2.70	7.08	1.77	4.92	5.12	10.40	2.81
1876-78 .....	3.52	1.60	8.17	3.11	9.33	10.59	20.58	3.31
1893-95 .....	.50	1.56	5.97	1.62	1.24	2.61	.....	.67
1862 .....	3.45	.....	.....	.....	.....	.....	40.04	1.23
1872 .....	8.63	8.51	14.01	12.56	19.66	28.54	19.16	8.66
1895 .....	1.86	1.66	7.38	1.79	2.52	.....	2.63	.87

TABLE III. (g)

An exhibit by years and periods of years, from 1862 to 1895, of the total product of the oat crop in bushels and tons in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in dollars, currency and gold, and its average home or farm value per bushel and ton in currency and gold.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE PER			Index Num- bers.
	Bushels.	Tons.		Bushel, Gold.	Ton, Cur'ncy		
					Gold.	Gold.	
1862-66 .....	462,206,440	7,395,303	277,452,410	.384	37.52	24.01	93
1867-70 .....	387,199,000	6,195,184	234,933,060	.480	37.92	30.01	116
1871-74 .....	309,974,000	4,959,584	156,228,540	.453	31.52	28.34	110
1875-78 .....	421,327,680	6,741,243	162,841,942	.368	24.16	22.99	89
1879-82 .....	411,240,138	6,579,842	188,277,129	.458	.....	28.61	111
1883-86 .....	451,537,700	7,224,603	174,210,608	.386	.....	24.11	93
1887-90 .....	411,062,000	6,576,992	157,278,984	.383	.....	23.91	93
1891-94 .....	432,315,641	6,917,050	168,379,672	.389	.....	24.34	94
1862-66 .....	462,206,440	7,395,303	277,452,410	.384	37.52	24.01	93
1867-73 .....	624,351,000	9,989,616	347,366,190	.460	34.77	28.75	111
1874-80 .....	696,051,658	11,136,826	292,498,136	.402	26.26	25.12	97
1881-87 .....	763,379,860	12,310,078	317,548,103	.413	.....	25.80	100
1888-94 .....	734,873,641	11,757,978	284,737,506	.388	.....	24.22	94
1862-94 .....	3,286,862,599	52,589,801	1,519,602,345	.410	28.90	25.62	99
1867-84 .....	2,824,656,159	45,194,498	1,242,149,935	.414	27.49	25.88	100
1867-78 .....	1,118,500,680	17,896,011	554,003,542	.430	30.95	26.90	104
1879-86 .....	862,777,838	13,804,445	362,487,737	.420	.....	26.26	102
1887-94 .....	843,377,641	13,494,042	325,658,656	.386	.....	24.13	93
1867-78 .....	1,118,500,680	17,896,011	554,003,542	.430	30.95	26.90	104
1879-82 .....	411,240,138	6,579,842	188,277,129	.458	.....	28.61	111
1883-94 .....	1,294,915,341	20,718,645	499,869,264	.386	.....	24.12	93
1867-80 .....	1,320,402,658	21,126,442	639,864,326	.429	30.30	26.79	104
1881-94 .....	1,504,253,501	24,068,056	602,285,609	.400	.....	25.02	97
1876-78 .....	332,817,680	5,325,082	121,589,742	.356	22.83	22.26	86
1893-95 .....	334,769,097	5,356,304	114,132,722	.341	.....	21.31	83
1862 .....	79,260,444	1,268,167	33,949,849	.299	26.77	18.71	72
1872 .....	78,553,000	1,256,848	36,340,170	.410	28.91	25.81	100
1895 .....	126,518,456	2,023,896	36,054,006	.285	.....	17.81	68



TABLE III. (h).

An exhibit for various years and periods of years, from 1862 to 1895 inclusive, of the different average gold farm values and index numbers for oats raised in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different average and index numbers having been obtained by different calculation, explained in the table.

Years.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division Per Ton (1)	Method for correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates. Per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seven States.	According to Relative Importance. (a)
		Per Ton.	Per Bu.		(1)	(2)	(3)		
1862-66 ...	\$24.01	\$25.58	.409	\$23.02	93	95	125	95	98
1867-70 ...	30.01	30.85	.494	23.92	116	114	130	105	120
1871-74 ...	28.41	29.50	.472	22.16	110	109	120	105	109
1875-78 ...	22.99	22.87	.366	17.05	89	84	93	86	86
1879-82 ...	28.61	28.20	.451	24.70	111	104	134	98	104
1883-86 ...	24.11	23.80	.381	21.97	93	88	119	82	86
1887-90 ...	23.91	23.63	.378	22.69	93	87	123	81	83
1891-94 ...	24.34	23.91	.383	23.91	94	88	130	81	83
1862-66 ...	24.01	25.58	.409	23.02	93	95	125	95	98
1867-73 ...	28.93	30.21	.483	22.75	111	112	124	104	114
1874-80 ...	25.15	24.88	.398	21.07	97	92	115	90	93
1881-87 ...	25.80	25.48	.408	22.74	100	94	124	87	92
1888-94 ...	24.22	23.63	.378	23.43	94	87	127	81	83
1862-94 ...	25.62	25.62	.410	22.81	99	95	124	88	95
1876-78 ...	22.26	22.08	.353	18.77	86	82	102	83	83
1893-95 ...	21.31	20.90	.334	20.23	83	77	110	72	73
1862 .....	18.71	.....	.....	.....	72	.....	.....	74	77
1872 .....	25.81	27.06	.493	18.40	100	100	100	100	100
1895 .....	17.81	17.81	.285	16.94	68	66	92	61	62

(a) Computed by Sauerbeck's method.

TABLE III. (i)

An exhibit for various years and periods of years, from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the oats raised in the seventeen states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations, explained in the table.

Years.	TOTAL PRODUCT IN—		Total Value in Dollars.	AVERAGE VALUE PER			Index Num- bers.	
	Bushels.	Tons.		Currency.	Bushel,	Ton,		
					Gold.	Cur'ncy		Gold.
1862-66 .....	878,308,350	14,052,933	455,456,298	.331	32.41	20.67	120	
1867-70 .....	913,872,000	14,621,952	461,086,230	.399	31.53	24.94	144	
1871-74 .....	917,716,000	14,683,456	351,331,690	.344	23.93	21.49	124	
1875-78 .....	1,329,857,770	21,277,725	388,508,664	.277	18.26	17.33	101	
1879-82 .....	1,480,241,253	23,683,860	539,547,009	.364	.....	22.78	132	
1883-86 .....	2,105,743,100	33,691,889	589,484,438	.280	.....	17.50	101	
1887-90 .....	2,248,811,000	35,980,976	638,544,365	.284	.....	17.75	103	
1891-94 .....	2,307,070,837	36,913,133	696,406,421	.302	.....	18.87	109	
1862-66 .....	878,308,350	14,052,933	455,456,298	.331	32.41	20.67	120	
1867-73 .....	1,621,333,000	25,941,328	706,131,720	.361	27.22	22.57	131	
1874-80 .....	2,226,437,633	35,623,002	720,035,584	.309	20.21	19.33	112	
1881-87 .....	3,452,786,490	55,244,584	1,664,547,767	.308	.....	19.27	112	
1888-94 .....	4,002,754,837	64,044,077	1,174,193,746	.293	.....	18.33	106	
1862-94 .....	12,181,620,310	194,905,924	4,120,365,115	.312	21.14	19.51	113	
1867-94 .....	11,303,311,960	180,852,991	3,664,908,817	.311	20.26	19.43	113	
1867-78 .....	3,161,445,770	50,583,133	1,200,926,584	.332	23.74	20.74	120	
1879-86 .....	3,585,984,353	57,375,749	1,129,031,447	.315	.....	19.68	114	
1887-94 .....	4,555,881,837	72,894,109	1,334,950,786	.293	.....	18.31	106	
1867-78 .....	3,161,445,770	50,583,133	1,200,926,584	.332	23.74	20.74	120	
1879-82 .....	1,480,241,253	23,683,860	539,547,009	.364	.....	22.78	132	
1883-94 .....	6,661,624,937	106,585,998	1,924,435,224	.289	.....	18.05	105	
1867-80 .....	3,847,770,633	61,564,330	1,426,167,304	.332	23.17	20.71	120	
1881-94 .....	7,455,541,327	119,288,661	2,238,741,513	.300	.....	18.77	109	
1876-78 .....	1,011,092,770	16,177,484	278,378,764	.269	17.21	16.79	97	
1893-95 .....	1,820,428,781	29,126,859	462,960,304	.254	.....	15.90	92	
1862 .....	146,501,884	2,344,030	53,138,797	.252	22.67	15.76	91	
1872 .....	242,032,000	3,872,512	175,158,720	.276	19.41	17.27	100	
1895 .....	705,308,944	12,284,544	130,100,848	.184	.....	11.53	67	

TABLE III. (j).

An exhibit for various years and periods of years, from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the oats raised in the seventeen states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations, explained in the table.

Years.	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seventeen States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66 ...	\$20.67	\$19.57	.313	\$19.14	120	130	178	124	107
1867-70 ...	24.94	23.33	.373	19.72	144	155	184	140	135
1871-74 ...	21.52	20.92	.335	17.60	124	139	164	127	123
1875-78 ...	17.33	16.72	.268	13.70	101	111	128	102	100
1879-82 ...	22.78	22.61	.362	19.97	132	150	186	135	135
1883-86 ...	17.50	18.00	.288	17.22	101	119	160	107	111
1887-90 ...	17.75	18.43	.294	18.10	103	122	169	110	115
1891-94 ...	18.87	19.48	.312	19.32	109	129	180	116	121
1862-66 ...	20.67	19.57	.313	19.14	120	130	178	124	107
1867-73 ...	22.59	21.31	.340	17.84	131	141	166	126	126
1874-80 ...	19.34	18.75	.300	16.35	112	124	152	113	111
1881-87 ...	19.27	19.68	.315	18.20	112	130	170	116	120
1888-94 ...	18.33	18.92	.303	18.92	106	126	176	113	118
1862-94 ...	19.52	19.52	.312	17.90	113	130	167	117	118
1876-78 ...	16.79	15.73	.252	13.75	97	104	128	98	95
1893-95 ...	15.90	16.66	.267	15.59	92	111	145	100	103
1862 .....	15.76	.....	.....	.....	91	.....	.....	57	80
1872 .....	17.27	15.07	.241	10.73	100	100	100	100	100
1895 .....	11.53	14.00	.225	13.35	67	93	124	55	76

(a) Computed by Sauerbeck's method.



TABLE III. (k).

An exhibit by years and periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the oat crop in the states of the American union not included in Tables (c) and (g), together with the total farm or home value of the same in dollars currency and its average home or farm value per bushel and ton in gold and currency.

Years.	TOTAL PRODUCT IN		Total Value in Dollars,  Currency.	AVERAGE VALUE PER			Index Num- bers.
	Bushels.	Tons.		Bushel, Gold.	Ton,		
					Cur'ney	Gold.	
1862-66 .....	130,886,193	2,094,180	81,037,213	.404	38.70	25.22	76
1867-70 .....	155,398,200	2,486,371	98,356,260	.486	39.56	30.36	92
1871-74 .....	120,483,000	1,927,728	68,777,330	.515	35.68	32.18	97
1875-78 .....	165,316,290	2,645,060	74,464,546	.431	28.15	26.95	82
1879-82 .....	206,137,057	3,298,193	107,406,832	.521	.....	32.57	99
1883-86 .....	302,730,300	4,843,685	124,854,086	.412	.....	25.77	78
1887-90 .....	387,678,000	6,202,848	151,400,159	.391	.....	24.41	74
1891-94 .....	393,299,941	6,292,800	147,552,469	.375	.....	23.45	71
1862-66 .....	130,886,193	2,094,180	81,037,213	.404	38.70	25.22	76
1867-73 .....	245,767,200	3,932,275	148,372,260	.492	37.73	30.77	92
1874-80 .....	290,752,127	4,652,034	138,762,005	.460	29.83	28.73	87
1881-87 .....	520,036,520	8,320,584	226,667,539	.436	.....	27.24	82
1888-94 .....	674,486,941	10,791,792	259,018,878	.384	.....	24.00	73
1862-94 .....	1,861,928,981	29,790,865	853,857,895	.426	28.66	26.61	81
1867-94 .....	1,731,042,788	27,696,685	772,820,682	.428	27.90	26.72	81
1867-78 .....	441,197,490	7,059,159	241,598,136	.473	34.23	29.57	90
1879-86 .....	508,867,357	8,141,878	232,260,918	.456	.....	28.52	86
1887-94 .....	780,977,941	12,495,648	298,961,628	.383	.....	23.92	72
1867-78 .....	441,197,490	7,059,159	241,598,136	.473	34.23	29.57	90
1879-82 .....	206,137,057	3,298,193	107,406,832	.521	.....	32.57	99
1883-94 .....	1,083,708,241	17,339,333	423,815,714	.391	.....	24.44	74
1867-80 .....	536,519,327	8,584,309	287,134,265	.475	33.45	29.66	90
1881-94 .....	1,194,523,461	19,112,376	485,686,417	.407	.....	25.41	77
1876-78 .....	129,763,790	2,076,221	55,094,516	.360	26.54	22.49	68
1893-95 .....	304,956,534	4,879,307	103,057,776	.338	.....	21.12	64
1862 .....	23,179,229	370,868	8,981,922	.267	24.22	16.69	51
1872 .....	29,715,000	475,400	16,156,990	.528	33.98	33.02	100
1895 .....	119,134,593	1,906,553	33,554,200	.282	.....	17.60	53

TABLE III. (I).

An exhibit by years and certain periods of years, from 1862 to 1895 inclusive, of the acres sown to oats in the states of the American Union not included in Table (c) (called Exterior States in this report), together with the total product of oats in said states in bushels and tons, and the total home or farm value of the same in dollars, currency, and gold, and its average home or farm value per bushel and ton in gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCTION.		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dolls. Gold.	AVERAGE VALUE PER BUSHEL IN CENTS.	
		Bushels.	Tons.	Currency.	Gold.		Currency.	Gold.
1862.....	2,932,686	102,439,673	1,639,035	42,931,771	29,908,901	18.25	41.9	29.2
1863.....	3,929,223	100,803,972	1,612,864	58,610,359	44,116,397	27.35	68.1	43.8
1864.....	3,861,275	100,278,236	1,604,452	90,395,969	41,853,334	26.08	90.1	41.7
1865.....	4,072,162	126,007,593	2,016,122	63,553,682	45,377,329	22.51	50.4	36.0
1866.....	5,732,001	163,563,159	2,617,010	92,997,942	69,097,471	26.40	56.9	44.2
1867.....	6,331,749	156,017,000	2,496,272	107,283,130	77,458,420	31.03	68.8	49.6
1868.....	5,716,154	132,623,800	2,121,981	88,336,290	65,453,636	30.85	66.6	49.4
1869.....	5,159,332	141,245,000	2,259,920	77,504,560	64,081,997	28.35	54.9	45.4
1870.....	4,119,591	112,711,400	1,803,382	60,165,340	54,419,783	30.18	53.4	48.3
1871.....	4,010,918	108,163,000	1,730,608	57,155,400	52,499,640	30.34	52.8	48.7
1872.....	4,153,818	108,268,000	1,732,288	52,497,160	46,753,126	26.99	48.5	43.2
1873.....	4,388,895	111,090,000	1,777,440	52,796,570	47,547,310	26.75	47.5	42.8
1874.....	4,726,641	102,936,000	1,646,976	62,556,740	55,793,388	33.18	60.8	54.2
1875.....	4,963,273	124,062,500	1,985,000	60,622,230	52,883,664	27.15	48.9	43.4
1876.....	5,886,794	139,625,000	2,233,999	60,715,120	57,239,895	25.63	43.5	41.0
1877.....	5,870,991	163,154,000	2,610,464	62,144,650	61,231,642	23.45	38.1	37.5
1878.....	6,009,900	159,802,470	2,556,840	53,824,488	.....	20.74	.....	33.2
1879.....	5,730,400	140,999,100	2,255,986	60,117,399	.....	26.65	.....	42.6
1880.....	7,347,621	156,224,715	2,499,595	71,279,514	.....	28.52	.....	45.6
1881.....	7,609,500	155,699,000	2,491,184	85,408,720	.....	34.29	.....	54.9
1882.....	8,517,162	164,454,380	2,631,270	78,878,328	.....	29.98	.....	48.0
1883.....	8,723,926	177,679,000	2,842,864	78,251,674	.....	27.53	.....	44.0
1884.....	9,063,194	179,597,000	2,873,552	68,642,690	.....	23.89	.....	38.2
1885.....	9,358,417	195,479,000	3,127,664	74,291,190	.....	23.75	.....	38.0
1886.....	9,860,651	201,513,000	3,224,208	77,879,140	.....	24.15	.....	38.6
1887.....	10,407,964	214,995,000	3,439,920	80,863,900	.....	23.51	.....	37.6
1888.....	10,598,963	218,188,000	3,491,008	79,487,690	.....	22.77	.....	36.4
1889.....	10,757,054	202,590,000	3,241,440	69,161,988	.....	31.34	.....	34.1
1890.....	10,456,560	162,967,000	2,607,472	79,174,565	.....	30.36	.....	48.6
1891.....	10,307,868	230,223,000	3,683,568	91,642,985	.....	24.88	.....	39.8
1892.....	9,725,303	201,320,000	3,221,120	76,706,884	.....	23.81	.....	38.1
1893.....	9,545,824	206,598,885	3,305,583	74,583,794	.....	22.56	.....	36.1
1894.....	9,560,401	187,473,697	2,999,579	72,998,478	.....	24.34	.....	38.9
1895.....	9,523,102	245,653,049	3,930,449	69,608,206	.....	17.71	.....	28.3
1862-66.....	20,527,347	593,092,633	9,489,483	358,489,623	230,353,432	24.27	60.4	38.8
1867-70.....	21,326,826	542,597,200	8,681,555	333,289,320	261,413,836	30.11	61.4	48.2
1871-74.....	17,280,272	430,457,000	6,887,312	225,005,870	202,593,464	29.42	52.3	47.1
1875-78.....	22,730,958	586,643,970	9,386,303	237,306,488	226,179,689	24.10	48.4	38.6
1879-82.....	29,204,683	617,377,195	9,878,035	295,683,961	.....	29.93	.....	47.9
1883-86.....	36,989,188	754,268,000	12,068,288	299,064,694	.....	24.78	.....	39.6
1887-90.....	42,220,541	798,740,000	12,779,840	308,688,143	.....	24.15	.....	38.6
1891-94.....	39,139,396	825,615,582	13,209,850	315,932,141	.....	23.92	.....	38.3
1862-66.....	20,527,347	593,092,633	9,489,483	358,489,623	230,353,432	24.27	60.4	38.8
1867-73.....	33,880,457	870,118,200	13,921,891	495,738,450	408,213,912	29.32	57.0	46.9
1874-80.....	40,535,620	986,803,785	15,788,860	431,260,141	412,369,990	26.18	43.7	41.9
1881-87.....	63,523,814	1,289,416,380	20,630,662	544,215,642	.....	26.38	.....	42.2
1888-94.....	70,951,973	1,409,360,582	22,549,770	543,756,384	.....	24.11	.....	38.6
1862-94.....	229,419,211	5,148,791,580	82,380,666	2,373,460,240	2,139,909,360	25.98	46.1	41.6
1867-94.....	208,891,864	4,555,698,947	72,891,183	2,014,970,617	1,909,555,928	26.20	44.2	41.9
1867-78.....	61,338,056	1,559,698,170	24,955,170	795,601,678	690,186,989	27.66	51.0	44.3
1879-86.....	66,123,871	1,371,645,195	21,946,323	594,748,655	.....	27.10	.....	43.4
1887-94.....	81,359,937	1,624,355,582	25,989,690	624,620,284	.....	24.03	.....	38.5
1867-78.....	61,338,056	1,559,698,170	24,955,170	795,601,678	690,186,989	27.66	51.1	44.3
1879-82.....	20,204,683	617,377,195	9,878,035	295,683,961	.....	29.93	.....	47.9
1883-94.....	118,349,125	2,378,623,582	38,057,978	923,684,978	.....	24.27	.....	38.8
1867-80.....	74,416,077	1,856,921,985	29,710,751	926,998,591	821,583,902	27.65	49.9	44.2
1881-94.....	134,475,787	2,698,776,962	43,180,432	1,087,972,026	.....	25.20	.....	40.3
1876-78.....	17,767,685	462,581,470	7,401,303	176,684,258	172,296,025	23.28	38.2	37.2
1893-95.....	28,629,327	639,725,631	10,235,611	217,190,478	.....	21.22	.....	34.0

TABLE III. (m).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the acres sown to oats in the United States, and the total product of the same in bushels and tons, its total home or farm value in gold and currency, the average yield per acre in bushels and the average home or farm value per bushel and ton in gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Bushels.	AVERAGE.		
		Bushels.	Tons.			Value Per Bu. in Cents.		Value Per Ton in Dollars, Gold.
						Cur'ncy	Gold.	
1862	5,832,538	169,681,113	2,714,898	62,120,719	29.0	61.9	25.4	15.89
1863	6,686,174	170,129,864	2,722,078	105,990,905	25.4	55.9	40.1	25.04
1864	6,461,750	175,990,194	2,815,843	139,381,247	27.2	47.6	36.6	22.92
1865	6,894,091	225,252,295	3,604,037	93,745,314	32.7	43.3	29.7	18.57
1866	8,864,219	268,141,077	4,290,257	135,255,326	30.2	40.1	37.5	23.42
1867	10,746,416	278,698,000	4,459,168	172,472,970	25.9	23.6	44.7	27.92
1868	9,665,736	254,960,800	4,079,373	142,484,910	26.3	37.4	41.3	25.84
1869	9,461,441	288,334,000	4,613,344	137,347,900	30.4	52.0	39.3	24.58
1870	8,792,395	247,277,400	3,956,438	107,136,710	28.1	36.5	39.2	24.48
1871	8,365,809	255,743,000	4,091,888	102,570,030	30.5	35.1	36.8	23.01
1872	9,000,769	271,747,000	4,347,952	91,315,710	30.1	29.2	29.9	18.68
1873	9,751,700	270,340,000	4,325,440	101,175,750	27.7	24.6	33.6	21.03
1874	10,897,412	240,369,000	3,845,904	125,047,530	22.0	.....	46.3	28.96
1875	11,915,075	354,317,500	5,669,080	129,490,930	29.7	.....	32.4	20.27
1876	13,358,908	320,884,000	5,134,144	112,865,900	24.0	.....	33.1	20.71
1877	12,826,148	406,394,000	6,502,304	118,661,550	31.6	.....	28.8	17.98
1878	13,176,500	413,578,560	6,617,257	101,945,830	31.4	.....	24.8	15.41
1879	12,683,500	363,761,320	5,820,181	120,533,294	28.7	.....	33.1	20.71
1880	16,187,977	417,885,380	6,686,166	150,243,555	25.8	.....	36.0	22.47
1881	16,831,600	416,481,000	6,663,696	193,198,970	24.7	.....	46.4	28.99
1882	18,494,691	488,250,610	7,812,010	182,978,022	26.4	.....	37.5	23.42
1883	20,324,962	571,302,400	9,140,838	187,040,264	28.1	.....	32.7	20.46
1884	21,300,917	583,628,000	9,338,048	161,528,470	27.4	.....	27.7	17.30
1885	22,783,630	629,409,000	10,070,544	179,631,860	27.6	.....	28.5	17.84
1886	23,658,474	624,134,000	9,986,144	186,137,930	26.4	.....	29.8	18.64
1887	25,920,966	659,618,000	10,553,888	200,639,790	25.4	.....	30.4	19.02
1888	26,998,282	701,735,000	11,227,760	195,424,240	26.0	.....	27.8	17.41
1889	27,462,316	751,515,000	12,024,240	171,781,008	27.4	.....	22.9	14.28
1890	26,431,369	523,621,000	8,377,953	222,048,486	19.8	.....	42.4	26.50
1891	25,581,861	738,394,000	11,814,304	232,312,267	28.9	.....	31.5	19.55
1892	27,062,825	661,035,000	10,576,560	209,253,611	24.4	.....	31.7	19.79
1893	27,273,033	638,854,850	10,221,678	187,576,092	23.4	.....	29.4	18.35
1894	27,023,553	662,086,928	10,593,391	214,816,920	24.5	.....	32.4	20.28
1895	27,878,406	824,443,537	13,191,097	163,655,068	29.6	.....	19.9	12.41
1862-66.	34,738,772	1,009,194,543	16,147,113	536,493,511	29.1	53.1	34.0	21.26
1867-70.	38,665,988	1,069,270,200	17,108,323	559,442,490	27.7	52.3	41.2	25.72
1871-74.	38,015,690	1,038,199,000	16,611,184	420,109,020	27.3	40.5	36.4	22.73
1875-78.	51,276,631	1,495,174,060	23,922,785	462,973,210	29.2	31.0	29.4	18.30
1879-82.	64,197,768	1,686,378,310	26,982,053	646,953,841	26.3	.....	38.3	23.98
1883-86.	88,067,983	2,408,473,400	38,535,574	714,338,524	27.3	.....	29.6	18.54
1887-90.	106,812,873	2,636,489,000	42,183,824	789,953,524	24.7	.....	30.0	18.73
1891-94.	106,941,277	2,700,370,778	43,205,933	843,958,890	25.3	.....	31.3	19.54
1862-66.	34,738,772	1,009,194,543	16,147,113	536,493,511	29.1	53.1	34.0	21.26
1867-73.	65,784,266	1,867,100,200	29,873,603	854,503,980	28.4	45.8	37.8	23.65
1874-80.	91,045,520	2,517,189,760	40,275,036	858,797,589	27.6	34.1	32.7	20.41
1881-87.	149,315,180	3,972,823,010	63,563,168	1,291,215,306	26.6	.....	32.5	20.23
1888-94.	187,833,244	4,677,241,778	74,835,869	1,433,212,624	24.9	.....	30.6	19.15
1862-94.	528,716,982	14,043,549,291	224,696,789	4,974,223,010	26.6	35.4	32.7	20.45
1867-94.	493,978,210	13,034,354,748	208,549,676	4,437,729,499	26.4	34.0	32.6	20.39
1867-78.	127,958,309	3,602,643,260	57,642,292	1,442,524,720	28.1	40.0	34.9	21.82
1879-86.	152,265,751	4,094,851,710	65,517,627	1,361,292,365	26.9	.....	33.5	20.73
1887-94.	213,754,150	5,336,859,778	85,389,757	1,633,912,414	25.0	.....	30.6	19.13
1867-78.	127,958,309	3,602,643,260	57,642,292	1,442,524,720	28.1	40.0	34.9	21.82
1879-82.	64,197,768	1,686,378,310	26,982,053	646,953,841	26.3	.....	38.3	23.98
1883-94.	301,822,133	7,745,333,178	123,925,331	2,348,250,938	25.7	.....	30.3	18.95
1867-80.	156,829,786	4,384,289,960	70,148,639	1,713,301,569	27.9	39.1	34.9	21.79
1881-94.	337,148,424	8,650,064,788	138,401,037	2,724,427,930	25.7	.....	31.5	19.68
1876-78.	39,361,556	1,140,856,560	18,253,705	333,473,280	29.0	29.2	18.5	17.81
1893-95.	32,174,997	2,125,385,315	34,006,166	566,048,080	25.9	.....	26.6	16.65



TABLE III. (n).

An exhibit for the years 1862 to 1895, inclusive, of the average value per bushel and ton in gold, of the oats raised in ten Mississippi Valley states, and in the other states of the Union (in table designated as Exterior States), not included in the group of ten and in the nation; together with the weight in tons and the value in dollars gold of the annual per capita product of oats in the United States.

Years.	SIMPLE INDEX NUMBERS.			AVERAGE GOLD VALUE PER BUSHEL, IN GOLD.			AVERAGE GOLD VALUE PER TON, IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862.....	93	68	85	.197	.292	.254	12.29	18.25	15.89	.....	.....
1863.....	165	101	134	.347	.438	.401	21.67	27.35	25.04	.....	.....
1864.....	143	97	123	.300	.417	.366	18.80	26.08	22.92	.....	.....
1865.....	103	83	99	.217	.360	.297	13.57	22.51	18.57	.....	.....
1866.....	143	135	125	.300	.442	.375	18.76	26.40	23.42	.....	.....
1867.....	183	115	149	.384	.496	.447	24.04	31.03	27.92	.123	3.44
1868.....	155	114	138	.326	.494	.413	20.39	30.85	25.84	.110	2.85
1869.....	159	105	132	.335	.454	.393	20.95	28.35	24.58	.122	3.00
1870.....	150	112	131	.315	.483	.392	19.69	30.18	24.48	.103	2.51
1871.....	134	112	123	.282	.487	.368	17.64	30.34	23.01	.103	2.38
1872.....	100	100	100	.211	.432	.299	13.16	26.99	18.68	.107	2.00
1873.....	130	99	113	.272	.428	.336	17.02	26.75	21.03	.104	2.18
1874.....	192	126	155	.401	.542	.463	25.27	33.88	28.96	.090	2.60
1875.....	126	100	109	.265	.434	.324	16.56	27.15	20.27	.129	2.61
1876.....	129	95	111	.270	.410	.331	16.92	25.63	20.71	.114	2.36
1877.....	109	87	96	.229	.375	.288	14.30	23.45	17.98	.140	2.52
1878.....	89	77	82	.187	.352	.248	11.67	20.74	15.41	.139	2.14
1879.....	129	100	111	.271	.426	.331	16.95	26.65	20.71	.119	2.47
1880.....	143	106	120	.302	.456	.360	18.36	28.52	22.47	.133	3.00
1881.....	196	127	155	.413	.549	.464	25.81	34.29	28.99	.130	3.77
1882.....	153	111	125	.321	.480	.375	20.09	29.08	23.42	.149	3.49
1883.....	131	102	110	.276	.440	.327	17.27	27.53	20.46	.170	3.48
1884.....	109	88	93	.230	.382	.277	14.37	23.89	17.30	.171	2.94
1885.....	115	88	96	.243	.380	.285	15.18	23.75	17.84	.179	3.20
1886.....	122	89	100	.256	.386	.298	16.01	24.15	18.64	.174	3.24
1887.....	128	87	102	.269	.376	.304	16.84	23.51	19.02	.180	3.42
1888.....	114	84	104	.240	.364	.278	14.98	22.77	17.41	.187	3.26
1889.....	89	79	76	.187	.341	.229	11.69	21.34	14.28	.196	2.80
1890.....	188	113	142	.396	.486	.424	24.76	30.36	26.50	.134	3.53
1891.....	131	92	105	.277	.396	.315	17.30	24.88	19.55	.185	3.63
1892.....	137	88	106	.288	.381	.317	18.02	23.81	19.79	.162	3.20
1893.....	124	84	98	.261	.361	.294	16.34	22.56	18.35	.153	2.81
1894.....	142	90	109	.299	.389	.324	18.69	24.34	20.28	.155	3.15
1895.....	77	66	66	.163	.283	.199	10.16	17.71	12.41	.189	2.35
1862-66...	129	90	114	.271	.388	.....	16.96	24.27	21.26	.....	.....
1867-70...	161	112	138	.399	.482	.....	21.21	30.11	25.72	.114	2.94
1871-74...	137	109	122	.288	.471	.....	18.00	29.42	22.73	.101	2.29
1875-78...	111	89	98	.235	.386	.....	14.71	24.10	18.39	.131	2.40
1879-82...	156	111	128	.329	.479	.....	20.54	29.93	23.98	.133	3.19
1883-86...	117	92	99	.251	.396	.....	15.69	24.78	18.54	.173	3.22
1887-90...	124	89	100	.262	.386	.....	16.36	24.15	18.73	.174	3.26
1891-94...	134	89	105	.282	.383	.....	17.60	23.92	19.54	.163	3.19
1862-66...	129	90	114	.271	.388	.....	16.96	24.27	21.26	.....	.....
1867-73...	142	109	127	.299	.469	.....	18.69	29.32	23.65	.110	2.60
1874-80...	127	97	109	.267	.419	.....	16.69	26.18	20.41	.124	2.53
1881-87...	132	98	108	.278	.422	.....	17.40	26.38	20.23	.165	3.36
1888-94...	129	89	103	.272	.386	.....	17.03	24.11	19.15	.167	3.20
1862-94...	131	96	109	.276	.416	.....	17.26	25.98	20.45	.....	.....
1867-94...	131	97	109	.276	.419	.....	17.27	26.20	20.29	.146	2.97
1867-78...	132	103	117	.278	.443	.....	17.37	27.66	21.82	.116	2.53
1879-86...	133	100	111	.281	.434	.....	17.54	27.10	20.73	.154	3.20
1887-94...	129	89	103	.272	.385	.....	16.99	24.03	19.13	.168	3.22
1867-78...	132	103	117	.278	.443	.....	17.37	27.66	21.82	.116	2.53
1879-82...	156	111	128	.329	.479	.....	20.54	29.93	23.98	.133	3.19
1883-94...	126	90	101	.266	.388	.....	16.59	24.27	18.95	.170	3.22
1867-80...	133	102	117	.280	.442	.....	17.48	27.65	21.79	.118	2.56
1881-94...	131	98	105	.275	.403	.....	17.18	25.20	19.68	.166	3.27
1876-78...	107	86	95	.225	.372	.....	14.09	23.28	17.81	.131	2.34
1893-95...	112	79	89	.235	.340	.....	14.68	21.22	16.65	.166	2.76

## CHAPTER IV.

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### WHEAT.

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#### SPECIAL CAUSES AFFECTING WHEAT PRICES.

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A glance at the graphic plates for wheat, corn, and oat prices discloses a wonderful difference between the movements for the three grains. There is a general agreement between the price movements for corn and oats, but wheat prices move along radically different lines. The characteristics that distinguish the wheat lines as a whole from those of corn and oats are many. A few of them will be mentioned. (1) Corn and oats show for certain groups of states a marked uniformity of lines. The wheat presents a great diversity. (2) The wheat lines mark for many states a decline of prices where the corn and oats show an upward trend. (3) The wheat lines show with the passage of the years a greater tendency to converge. On all plates the lines for states are drawn mostly in groups of three. For most groups in corn and oats these lines move quite parallel, with a slight tendency to converge at the close. The wheat lines in the same groups start in most cases widely apart and closely converge at the end. There was in 1862 a very great difference in the prices of wheat in the several states. That difference was one not wholly dependent upon freight rates. That old difference in wheat prices in the several states has been very largely removed, and there is now about the same variation in average prices as in the case of corn and oats. The causes producing the old wide variation in wheat prices and the present greater uniformity will later be considered at length. In this connection it will suffice to say that those causes have no relation to currency changes.

#### THE TREND OF WHEAT PRICES WHERE THEY ARE LEAST AFFECTED BY CHANGING FREIGHT RATES AND LOCAL CAUSES.

In the case of wheat, as of corn and oats, the prices of all the states are compared with those of Iowa, as one of the most central

in the newer portion of the West, to measure, if possible, the effect upon general prices of changing freight rates and other local causes. This central state of itself, better than any single standard, would disclose the price movement for any given agricultural staple where that movement was least affected by those local causes. The prices of wheat in Iowa are given in the tables. Those prices show no general decline since 1862, but rather an upward tendency. They rose from 1862 to 1881 and thereafter declined. This is a price movement that is in general parallel to that experienced for corn in the United States as a whole. It shows that one wheat state, at least, has its wheat prices and those of its corn and oats quite generally undisturbed by the factors that have played havoc with wheat prices in so many of the other states shown on the graphic plates and in the tables. But Iowa is only one of the states that, by its opening wheat fields, has assisted in shaping the world's wheat prices in the last twenty-five years. Minnesota, Kansas, and Nebraska have of recent years been greater factors in the world's wheat market than Iowa. What is the price movement of the combined wheat crops of these four states at present so dominant in the wheat markets of the world?

COMPARATIVELY STABLE WHEAT PRICES IN THE CENTER OF PRESENT  
AMERICAN WHEAT PRODUCTION.

The average gold farm values for Iowa and the simple and corrected averages for the group of four states named above will now be given side by side by seven-year periods from 1862 to 1894. The detailed figures for the group of four states can be found in Table (o) in this chapter. Many references will be made to that table.

TABLE A.

A comparative exhibit by seven-year periods of the average gold farm values for wheat in Iowa and in the group of states including Iowa, Minnesota, Kansas, and Nebraska, from 1862 to 1894, inclusive:

YEARS.	AVERAGE VALUE PER BUSHEL IN CENTS.		
	Iowa. Simple Average.	Four States.	
		Simple Average.	Corrected Average.
1862-66 .....	69.6	68.8	68.8
1867-73 .....	72.5	73.5	72.8
1874-80 .....	73.4	74.7	74.6
1881-87 .....	69.0	67.9	70.5
1888-94 .....	72.4	65.3	71.4



The corrected average values shown in the foregoing exhibit and in Tables (o), (p) and (q) are calculated, not as in all other tables by combining the state averages in the proportions which the totals of those states for thirty-three years bore to the corresponding totals for the group, but by combining them in the relative proportions of the several state wheat crops in 1862 to 1866. This gives as the corrected average values those that arise from combining the averages in the several states in the exact proportions of the first period. This method discloses better than the other the exact effect upon the price movement of shifting grain fields to a new section. In an old section this method of correcting averages would exaggerate the price decline, as to combine values in the proportion of the grain crop of 1895 would conceal that decline, for such a section, quite largely. The average of thirty-three years is chosen as the combining proportions for most of the tables. The exception is made in these three wheat tables, in which it is desired to show as fully as possible the effect upon price statistics of the opening up of new fields of wheat.

NO FALL OF WHEAT PRICES CAUSED BY THE SILVER LEGISLATION OF 1873.

The exhibit given above, under Table A, and the full Table (o), alike show conclusively that wheat prices in the Northwest, and, of course, in the world at large, have not in the least been affected by the silver legislation of 1873 and subsequent years. Turning to the corrected averages in Table (o) these facts are to be noted. The average gold farm value of wheat in Minnesota in the year 1862 was 34 cents, in 1869, 48.6 cents, and in 1895 it was 44.0 cents. In Iowa the corresponding farm gold values in 1862 was 47.5, in 1869 it was 42.8 and in 1895 it was 46.0 cents. The corrected averages for the group of four states was in 1862, 44.4; in 1869, 44.3; and in 1895, 45.5 cents. The years chosen were those of exceptionally low prices, but taking such years as a basis we note that in Minnesota and Iowa, and in the group as a whole, there has been a positive advance from one to ten cents a bushel according to the figures of the table. But these figures do not tell the whole story. Both of the States of Iowa and Minnesota, whose crops are the dominating factors in the table, are great states. In them since 1862 the grain fields have shifted a long distance to the West and Northwest. The wheat now raised in these states is grown in sections that have freight charges to market of at least ten cents a bushel more than does the wheat grown in the section raising the grain whose prices are here tabulated for 1862 to 1869. If allowance is made for this fact it is seen that wheat prices in these four

great wheat states have advanced, when comparisons are made under like conditions, from ten to twenty cents a bushel from those of twenty-six and thirty-three years ago.

If any one objects to conclusions drawn as are the foregoing from contrasting the prices of these exceptionally low years, the comparisons may be made by means of the seven-year periods, as in the small Table A, already given, or by the four-year periods, 1862 to 1865, 1868 to 1871, 1883 to 1886, and 1891 to 1894. In these latter named periods the average farm gold prices in Iowa were 58.2, 66.4, 65.0, and 67.1 cents. The corresponding figures for Minnesota were 48.7, 66.8, 64.2, and 62.1 cents. For the group the corresponding corrected averages were 56.7, 66.7, 64.7, and 66.2. These averages for the two states and for the group show an advance in price of from 9.4 to 13.4 cents a bushel in thirty-three years. The calculations giving these figures allow for any change in statistics by the increased growth of wheat on new lands in Kansas and Nebraska. They do not allow for the shifting of fields in the two states of Minnesota and Iowa. If this is allowed for we find, that, on an average, the gold farm values in this group, in the older settled counties, have advanced from fifteen to twenty cents a bushel in thirty years.

#### MARKET QUOTATIONS VS. GOVERNMENT GENERAL ESTIMATES.

Objection has been made by certain critics in England that the values for corn, oats, wheat, etc., compiled in the manner of those reported by the Agricultural Department, do not reflect the actual price movement. Those critics ask for actual market quotations. To furnish this information for those who question the methods of the United States Department of Agriculture there is given in this chapter in Tables (w) and (x) exhibits of the currency and gold wheat prices, reported by the local papers in six leading towns of the State of Minnesota, from 1860 to 1873 inclusive. These average prices are for the months of September, October, November, and December of the years mentioned. These are the months in which the farmers marketed their wheat. The places selected are the towns that would for the given years exhibit the highest average prices realized by the farmers of the state. The smaller towns did not in the years given in the table pay as much within five, ten, or twenty cents as those shown in the tables. The figures given are the averages for all the quotations of wheat sales reported in the local papers in the months given. The papers consulted were found in the library of the Minnesota State Historical Society. Even the favored towns whose prices are given in these tables (w) and (x) exhibit a greater advance in wheat prices than is presented

in Table (o). They confirm the deduction that has already been given from an analysis of that table, that wheat prices for the average small local wheat market in Southeastern Minnesota or Eastern Iowa are at the present about fifteen to twenty cents per bushel higher than the corresponding gold prices from 1860 to 1873. This statement, of course, needs to be given with limitations. The farm prices of the low price years, 1895 and 1896, are not that much greater than in the high price years, 1866 and 1867. They are that much above the corresponding prices of such low years as 1862, 1865, and 1869. The average of the four years, 1891 to 1894, is not fifteen or twenty cents above that of the high prices in the period 1867 to 1870, but above those of the four-year periods, 1862 to 1865 and 1868 to 1871.

#### PAST LOCAL DIFFERENCE IN WHEAT PRICES.

A glance at Tables (w) and (x) will disclose the wide difference in prices received by the farmers of Minnesota thirty years ago in towns less than one hundred miles apart. Rochester in 1860 paid for wheat fourteen cents a bushel less than Winona, only a day's drive away, and St. Cloud paid 42.5 while Winona paid 75 cents. The distance apart is only about one hundred miles. The difference was due to the absence of railroad or steamboat facilities in Rochester and St. Cloud, while Winona had the benefit of cheap water transportation on the Mississippi river. Mankato, in 1865, paid 50 cents for wheat in currency, St. Cloud 65.7, while Hastings paid 121.7. From Mankato to Hastings was found a difference greater than now exists between the farms of Dakota and Liverpool. Mankato and Hastings now have a difference in their wheat prices of not over three to five cents a bushel. This old local variation in prices has largely been removed as the result of improved railway facilities. The total variation in local prices is now only a few cents for all the towns in the state.

Those criticising the home farm prices reported by the United States Department of Agriculture have never looked up differences between the prices quoted in such centers of distribution as Chicago and New York and those realized years ago, and even now, by the farmers at their doors, in the local markets of the great West and Northwest. The record of the most favored of the old local Minnesota markets shows a greater relative advance in wheat prices than do the values reported by the Department of Agriculture. If error there is in the farm values used so fully in this report, that error is one that conceals the full amount of the wheat advance in prices that has come to the farmers of Iowa and Minnesota since 1862.



## THE DECLINE IN WINTER WHEAT PRICES.

On the graphic plate for wheat and in the tables for this chapter it is seen, that of the ten Mississippi Valley states, the movement of wheat prices has since 1873 been markedly downward in Ohio, Indiana, Illinois, Michigan, Missouri and Kansas, and in the other four states the prices are as high, if not higher, than the average in 1862 to 1865. The states named are classed by the department of agriculture as winter wheat states, although some of them raise more or less spring wheat. The other four Mississippi Valley states raise spring wheat almost exclusively. These states are Minnesota, Iowa, Wisconsin, and Nebraska. The state and group average values are given for winter wheat in Table (p), and those for spring wheat in Table (q), in this chapter. To show the different price movements, there is here given, in Table B, an exhibit of the comparative movement of wheat prices in the two groups of states.

TABLE B.

A comparative exhibit for Iowa and Michigan, as typical spring and winter wheat states, and a corresponding exhibit for six winter and four spring wheat states of the Mississippi Valley, of the gold farm values of wheat per bushel in cents since 1867:

YEARS.	WINTER WHEAT STATES.		SPRING WHEAT STATES.	
	Six States.	Michigan.	Four States.	Iowa.
1867-73 .....	109.6	119.2	80.9	72.5
1874-80 .....	96.3	97.0	80.8	73.4
1881-87 .....	85.7	87.0	76.2	69.0
1888-94 .....	72.8	76.9	72.8	72.4
1895.....	56.6	60.0	48.6	46.0
1869.....	79.4	79.9	50.5	42.8

The six winter wheat states, when comparing 1867 to 1873 with 1895, exhibit a decline in price of fifty-three cents, while the spring wheat states have one of 32.5 cents; Michigan has a decline of 59.2 cents and Iowa of 26.5. If comparison is made between the years 1869 and 1895 we note that the six states show a decline of 22.8 cents, while the four states show one of 1.9 cents; Michigan shows a decline of 19.9 cents, while Iowa shows an advance of 3.2 cents. Here there is for winter wheat since 1867 a decline of from twenty to twenty-five cents more than has come to spring wheat. This is all the decline that is noted in winter wheat states when comparing the year 1869 with 1895 or when comparing the four years 1891 to 1894, when the average gold value was 64.9 cents, with the four years 1862 to 1865, when it was 82.7 cents. This decline of 22.8

cents per bushel in the winter wheat states between 1869 and 1895, and the corresponding decline of 17.8 cents between 1862 to 1865 and 1891 to 1894 stands contrasted with the figures for the same years and periods in the four spring wheat states. In these latter, the average gold farm value was, in 1862, 50.2 cents; in 1869, 50.5 cents; and in 1896, 48.6 cents—a decline of 1.6 or 1.9 cents. In the same four spring wheat states in 1862 to 1865 the average gold farm value for wheat was 61.1 cents, while in 1891 to 1894 it was 65.8 cents, an increase of 4.7 cents.

From these facts it can be seen that there was no general decline in prices in the spring wheat states of the Mississippi Valley, but rather a substantial advance; while in the winter wheat states there was a decline of from twenty to twenty-five cents a bushel when the values of 1862 to 1865 are compared with those of 1891 to 1894. Now, changing freight rates cannot explain this difference in the price movement in the two groups of states. Those groups extend by the side of one another for a thousand miles from East and West. Kansas and Nebraska are affected by freight charges exactly alike, but in the one there is a price decline of twenty-five cents more than in the other. It is the same with Missouri and Iowa, Michigan and Wisconsin. If the cause of this great decline in one group of states can be ascertained, then is explained all the price changes in wheat that have taken place in these ten great Mississippi Valley states since 1862.

#### WINTER AND SPRING WHEAT PRICES IN THE MARKETS OF THE WORLD.

To assist in throwing light upon the cause of this decline in the gold farm value of winter wheat, as shown in the tables mentioned above, there is presented in Tables (s), (t), (w) and (v), exhibits of the relative currency prices at which winter and spring wheat were sold from 1860 to 1891 in the markets of Buffalo, N. Y., and Chicago, Ill., and the excess of one set of prices over the other. By a reference to those tables it will be seen that from 1862 to 1873 winter wheat sold for prices materially higher than any grade of spring wheat. After 1873 the Minnesota hard wheats, No. 1 Hard and No. 1 and No. 2 Northern, began to show a relative advance and shortly thereafter this hard spring wheat sold for more than any variety of winter wheat. The extent of this relative change may be seen when it is noted that in June, 1872, in Buffalo, N. Y., White Winter wheat sold for fifty cents more than any grade of Minnesota wheat, while in May, 1882, and April, 1889, the Minnesota No. 1 Hard Spring wheat sold for twenty-nine cents more than the best White Winter wheat; and No. 1 Northern Hard sold on September,

1882, for 11 cents per bushel more than White Winter. Here is a relative advance of seventy-nine cents for one kind of wheat and a corresponding fall in price for the other. No change in laws affecting money could have produced such opposite price movements. It should be noted in passing that this extreme relative change in the price of White Winter and No. 1 Hard Minnesota Spring, above referred to, is a greater change than affected the whole body of winter and spring wheat of other and inferior grades. The amount of the relative decline of the great body of winter wheat and the corresponding advance in spring wheat is shown in Tables D and E later in this chapter. The excess noted above of twenty-nine cents a bushel in 1882 and 1889 of No. 1 Hard Minnesota over White Winter wheat was exceptionally large. The average has ruled somewhat less since 1882, and is at present only a few cents. As a result of the cause or causes that relatively depressed the selling price of White Winter and raised that of No. 1 Hard Minnesota seventy-nine cents in ten years at Buffalo, N. Y., the price of different kinds of wheat in the world's markets practically come to an agreement. The old difference of price to be noted everywhere in 1873 vanished and now on the New York produce market contract wheat for future delivery means indifferently No. 2 Spring or Winter, No. 1 Northern being the same as No. 2 or ordinary spring. In the great markets for distribution there was in 1872 a difference of fifty cents a bushel in the selling price of the different kinds of wheat of the same grade, winter ruling above spring. To-day nearly all that difference is effaced and all kinds of wheat of the same grade are on the same level. In the markets of distribution, like New York City, spring wheat has declined since 1873 by a sum equal to the decline in freight rates from the State of Iowa to that city, and winter wheat has declined from twenty to forty cents more than that amount. In the great western centers of wheat production the farm values of spring wheat have been stationary or have risen, while those of winter wheat have fallen twenty to forty and more cents a bushel when periods of low price are compared with those of low price or high with high.

#### THE EFFECT OF MILLING INVENTIONS UPON WHEAT PRICES.

The explanation of all the facts shown in Tables (o), (p), (q), (r), (s), and (t) is found in the history of milling inventions that commercially date their importance from the year 1873. From the time when fine flour was first made from wheat, down to 1860, the millers of the world as a whole were unable wholly to separate the husk or bran from flour made from spring wheat as they could from



that prepared from winter wheat. As a result, the spring wheat flour was comparatively dark in color. The fine particles of bran which it contained attracted moisture and in many situations the spring wheat flour as the result of this fact would not keep sweet and fresh as did that made from winter wheat. Spring wheat flour and, of course, spring wheat itself, as a consequence commanded a lower price than the winter. This comparatively lower price for spring than for winter wheat was reversed in the United States as a result of the widespread introduction, not far from 1873, of certain milling inventions. In the Third Biennial Report of the Minnesota Bureau of Labor was given a history of milling and especially of the milling inventions that had their first practical application in the United States in Minnesota. There is here presented a brief summary of the history of those inventions.

#### THE "NEW PROCESS" OF MILLING WHEAT.

Not far from 1866 an educated French milling engineer located at Faribault, Minn., and erected a small mill. His name was La Croix. He was able by what was later known as the "high grinding" process, or "new process," wholly to remove all particles of bran from the hard wheat of Minnesota and produce a flour superior to any then made from any wheat by any known process. Mr. La Croix did not, however, make any large amount of flour. He merely supplied a small local market. Later, about 1870, after his own mill had been destroyed, he was employed in a larger mill at Minneapolis, where his inventions were applied, and in 1873 flour manufactured by his process was placed upon the markets of the world in commercial quantities. In that year the "new process" flour was first quoted in the market reports of Chicago, Ill., and Buffalo, N. Y., and that at prices above the selling value of any other brand of flour.

#### ADVANCE IN THE SELLING PRICE OF HARD SPRING WHEAT.

At first this "new process" flour was made exclusively from the hard spring wheat of Minnesota, Wisconsin, and the Dakotas. That wheat advanced relatively in value, when compared with other kinds of wheat. It rose from a selling value of fifty cents a bushel less than white winter wheat in 1872 to one of twenty-nine cents above in 1882. This advance greatly stimulated the production of hard spring wheat in Minnesota and the Dakotas. Emigrants flocked to these spring wheat states from 1875 to 1886 in great numbers. This advance in the relative price of spring wheat in the Northwest meant everything to these new settlers. It meant

fortunes for the bonanza wheat farmers of the Red River Valley. It meant assured comfort and competence to the small farmers in the same region. It meant in a few years over \$300,000,000 for the people of the Northwest.

#### DECLINE OF THE RELATIVE VALUE OF HARD SPRING WHEAT SINCE 1882.

Not far from 1882 millers began to blend or unite the flour made from different kinds of wheat. Other changes in the methods of the millers and new inventions in the milling industry all united with this custom of blending different flours to bring the prices of all kinds of wheat nearer to a level. They tended to destroy, in part at least, the relative advantage which hard spring wheat had enjoyed from 1874 to 1882 and to a date somewhat later over other kinds of wheat. The excess in selling value of ten to fifteen cents a bushel which during most of the time from 1878 to 1889 No. 1 Northern hard wheat enjoyed over all varieties of winter wheat, has practically vanished, and the excess of twenty-nine cents of No. 1 hard over winter wheat has been reduced to not over ten cents a bushel on an average. It frequently is not over five cents. These recent changes in milling methods have thus assisted in depressing the average prices in Minnesota and the Dakotas and destroying in part the advantage that followed the introduction of the "new process" in 1870. Here is one factor of the decline in wheat prices of Minnesota and the Dakotas since 1882. The extent of this decline in these states since that time due to this cause can be measured by comparing the average home gold values of Minnesota with those of Iowa at different four-year periods. This is shown in the following table:

TABLE C.

A comparative exhibit of the average farm home gold values of wheat in Iowa and Minnesota at different periods from 1867 to 1886:

YEARS.	Iowa.	Minnesota.
1867-70.....	68.9	68.6
1871-74.....	70.6	72.7
1875-78.....	70.3	74.9
1879-82.....	86.2	92.3
1883-86.....	65.0	64.3

In 1867 to 1870, before the introduction of the new process of milling, the average gold farm value in the two states ruled substantially the same. In the next four years the value in Minnesota ruled 2.1 cents above that of Iowa. In 1875 to 1878 it ruled

4.6 cents higher. In 1879 to 1882 it ruled 6.1 cents higher. In the next and subsequent four-year periods it was substantially the same. The apparent excess of wheat prices in Iowa during the last four years is due to the development of grain fields in Minnesota in sections comparatively more distant from final markets and hence subject to greater freight rates. The milling inventions gave to Minnesota and the Dakotas wheat, from 1879 to 1882, a temporary elevation of six cents a bushel over that of Iowa and all other states of our Union. Recent changes in milling methods have destroyed that difference and thus depressed the average farm gold values for wheat in the Northwest hard wheat states six cents a bushel.

IMMENSE LOSS TO THE FARMERS OF THE NORTHWEST BY THE RECENT  
FALL IN WHEAT PRICES.

This loss of six cents a bushel, just referred to, a loss due to a change in milling methods since 1882, is only a very small part of the loss that has come to the farmers of the Northwest by a decline of wheat prices since 1881. This latter loss, when comparing wheat prices in 1895 with those of 1881, is one which for the farmers of Minnesota and the Dakotas amounts to \$60,000,000 on the wheat crop for a single year, such as 1895. This relative loss on the wheat crop of these three states, when comparing the prices of 1881 or 1891 with those of 1895 or 1896, represents in two years a sum sufficient to pay off all the present mortgage debt resting on the farms of those states. This fact discloses the great economic and social significance of this change in wheat prices that has taken place in recent years in the Northwestern states. It justifies a thorough study into its causes. Smaller relative changes in agricultural prices in Great Britain have in recent years led to numerous and costly commissions for investigating the causes of the same. To demonstrate, as has already been done in this review, by the tables presented, that present prices of wheat in the spring wheat states are at present as high as before 1873 under like conditions and in the same place, is of some importance. It removes the ground on which rests the oft-repeated declaration that wheat prices have declined by reason of the silver legislation of 1873, but that is all. Investigations ought to go further. They should ascertain all the factors contributing to the decline after 1882, since that decline is of such vast economic importance to all the financial interest of that vast expanse of territory known generally as the Northwest. Later an attempt will be made to explain that decline. Before that, however, a few words will be devoted to a review of



## THE EFFECT OF MODERN MILLING INVENTIONS UPON PRICES OF WINTER WHEAT.

Mention has already been made of the fact that at first the effect of the new milling processes affected only the prices of hard spring wheat. These prices were raised relatively to those of other kinds of wheat and also actually. This advance from 1870 to 1882 was substantially thirty cents a bushel on an average. This hard spring wheat thus affected in price was in 1870 grown in only relatively small quantities. Later, when the cultivation of that wheat was greatly stimulated by this advance in selling value, its quantity increased until it now amounts to nearly, if not quite, 150,000,000 bushels annually. Other varieties of spring wheat, such as those grown in Iowa, Nebraska, and Russia, also greatly increased in their total product. With this great relative and actual increase in the growth of spring wheat there came a relative fall and later an actual fall in the prices of all winter wheat. Winter wheat prices for the United States as a whole and for the world fell to the level of those of spring wheat. This fact can also be stated from the side of the spring wheat by saying that the spring wheat prices rose to those of the winter wheat. However, the relative change is to be stated, the fact is that these prices which once were far apart gradually came to a common level. This fact can be well illustrated by contrasting the home gold farm values of wheat at different periods in the six winter wheat and four spring wheat states of the Mississippi Valley, previously referred to by name in this report.

TABLE D.

A comparative exhibit by four-year periods of the average gold farm values per busbel in cents in the six winter and four spring wheat states of the Mississippi Valley from 1867 to 1894 inclusive :

YEARS.	Average Values in Winter Wheat States.	Average Values in Spring Wheat States.	Differences.
1867-70 .....	116.5	77.4	39.1
1871-74 .....	105.4	80.6	24.8
1875-78 .....	94.0	77.5	16.5
1879-82 .....	104.3	95.7	8.0
1883-86 .....	79.3	69.4	9.9
1887-90 .....	80.7	75.1	5.6
1891-94 .....	64.9	65.8	-0.9

In the last four years the average value of grain in the spring wheat states was nine-tenths of a cent more than in the winter wheat states. This shows an average relative decline for all win-

ter wheat or a rise of the average of all spring wheat prices of forty cents a bushel when contrasting this last four-year period with 1867 to 1870, the years that reflected the relative prices before the new milling methods began to be used on a large scale. The relative change of prices between a hard spring wheat state like Minnesota and a winter wheat state like Kansas is quite different in its intermediate periods, although the final results of the various changes are about the same. The relative movement of these prices can be noted in this connection.

TABLE E.

A comparative exhibit by four-year periods of the average gold farm values per bushel in cents in the states of Kansas and Minnesota :

YEARS.	Kansas.	Minnesota.	Differences.
1862-66.....	94.0	48.7	45.3
1867-70.....	86.2	68.6	17.6
1871-74.....	88.8	72.7	16.1
1875-78.....	71.8	74.9	-3.1
1879-82.....	80.6	92.3	-9.7
1883-86.....	59.9	64.3	-4.4
1887-90.....	69.4	73.4	-4.0
1891-94.....	55.5	62.1	-6.6

In the column of differences the figures with no plus or minus sign before them express the excess of Kansas values over those of Minnesota, the minus sign indicates the excess of the opposite kind. How shall this change in the relative values of the two kinds of wheat in different states be designated? Shall it be called a loss to the winter wheat growers, or a gain to the spring wheat farmers? How has the present equilibrium of values been reached? The answers to all these questions are to be found substantially in Table D. The fall in prices for winter wheat states was, when comparing 1867 to 1870 with 1891 to 1894, 51.6 cents. The corresponding fall for the spring was 11.6 cents. The revolution in milling methods rests therefore wholly as a loss upon the winter wheat growers. There has been for both winter and spring wheat farmers in those ten states a loss of 11.6 cents a bushel in gold, in addition to the special loss of forty cents that has come to the winter wheat grower since 1867, as the result of the revolution in milling methods that began in 1870. In studying the effects upon grain prices of such a change of milling methods as those here passed in review, it should be remembered that wheat is a world commodity and its prices are affected by the supply and demand in all quarters of the globe. Relative and actual prices of winter and spring wheat are

affected not only by the relative amounts of these two kinds of grain in the United States but in all grain growing countries. Data are not at hand when this report is issued for considering this relative product of winter and spring wheat in all countries now and in 1870. A few facts are, however, available concerning Russia. These will be presented.

THE EFFECT OF THE MILLING INVENTIONS OF 1873 UPON RUSSIAN WHEAT GROWING.

The advance in spring wheat prices that followed the introduction of the "new process" in milling in 1873 stimulated the production of that kind of wheat not only in the United States but in all parts of the world. The great increase in Russian wheat exports since 1875 has been in the spring varieties. In that country at the present time the relative production of winter and spring wheat is in the ratio of 39 and 127, the spring being raised in proportions over three times as great as winter. The effect of the relative advance given to spring wheat by the milling invention of 1873 in stimulating the growth of spring wheat in Russia can be seen by the following exhibit of the export of Russian wheat by five-year periods, in millions of pouds, a Russian poud being the equivalent of 32.243 English pounds, or a little more than half a bushel.

YEARS.	Million Pouds.
1866-70.....	76.7
1871-75.....	92.0
1876-80.....	110.4
1881-85.....	123.8
1886-90.....	160.7

In the spring wheat sections of Southern Russia, according to the official reports of that government, the prices of land have risen relatively since 1870 more than in any other quarter. That advance for the Province of Kherson, one of the sections almost exclusively devoted to spring wheat culture, has been as follows: From 1860 to 1870 the value of a dessiatine of land, about 2.7 acres, was twenty-nine paper roubles. From 1870 to 1880 it averaged thirty-nine paper roubles, in 1883 fifty-five paper roubles and in 1889 ninety-four paper roubles. The exchange value of one hundred gold roubles was in paper in 1871 to 1875, 119; 1876 to 1880, 149; 1881 to 1885, 158; and from 1886 to 1890, 160. The value of land advanced faster than the ratio between paper and gold, and hence in the culture of spring wheat the Russian farmer found an increas-



ing profit, at least down to 1889. The flour milling invention of 1873 thus materially increased the income of the spring wheat farmer in Russia as well as in the American Northwestern states.

In Table B was given, by seven-year periods, the home value of grain in winter and spring wheat states. A comparison by seven-year periods best shows the general drift of prices unaffected by transient and local causes. A shorter period of time must be taken when it is desired to note the effect of these transient and local causes. To bring them before the reader there is here presented the same data by four-year periods from 1862 to 1894.

TABLE F.

A comparative exhibit by periods of four years for Iowa, Minnesota and Michigan and a corresponding exhibit for six winter and four spring wheat states of the Mississippi Valley of the gold farm values of wheat per bushel in cents from 1862 to 1894 inclusive:

YEARS.	WINTER WHEAT STATES		SPRING WHEAT STATES.		
	Six States.	Michigan.	Four States	Iowa.	Minnesota.
1862-66.....	90.2	110.8	72.4	69.6	48.7
1867-70.....	116.5	115.9	77.4	68.9	68.6
1871-74.....	105.4	115.9	80.6	70.6	72.7
1875-78.....	94.0	102.4	77.5	70.3	74.9
1879-82.....	104.3	105.2	95.7	86.2	92.3
1883-86.....	79.3	81.4	69.4	65.0	64.3
1887-90.....	80.7	84.1	75.1	71.8	73.4
1891-04.....	64.9	69.4	65.8	67.6	62.1

This table does not show a continuous decline for winter wheat from 1873 as does Table B for seven-year periods. It shows for all of the states a period of high prices, 1867 to 1870, and then a second for 1879 to 1882. These were short periods of high prices brought about by special and transient causes. They were causes which by their operation tended to conceal and did conceal the downward movement of winter wheat prices that began in 1870 as the result of the changed processes of milling. They also increased the rise of spring wheat prices that naturally followed the introduction of the "new process."

#### THE CAUSES PRODUCING THE HIGH PRICES OF 1867 TO 1870.

The year 1867 marks the highest point reached by the annual average price of wheat in the United States since wheat production on a considerable scale for the foreign market became a recognized feature of American farming. The wheat harvests of 1866 and 1867 were unusually low both in Europe and in the United States.

The shortage was greatest in America in 1866 and in Europe in 1867. The London Economist, in its Commercial History and Review for 1867, says: "1866, therefore, will be memorable as a year of pestilence, war, scarcity, Irish discontent, and as a year in which occurred the most extensive and severe financial crisis of the present century." The same authority, for 1868, says: "The harvest for 1867 was almost universally bad or indifferent. \* \* \* The winter of 1866 to 1867 was exceptionally severe, especially in this country. \* \* \* Over the whole North of Europe and a considerable part of Germany, the grain crops of 1867 were alarmingly deficient. \* \* \* The only great crops have been in Hungary and along the lower Danube."

The poor crops of the United States in 1866 used up the old stock of grain. The failure in Europe in 1867 created a large demand and hence the extraordinary price of that year. A reaction came in 1869, which was one of lower prices in the Mississippi Valley spring wheat states than 1895, but the bountiful harvests and high prices of 1867 make the period 1867 to 1870 one of the highest ever known for wheat and all other kinds of grain in the Central American states and for the United States as a whole. This peculiar combination of circumstances, elevating prices in these years, causes all but one subsequent period to show a fall when compared with this one, although a comparison with the years 1862 to 1866 or 1868-71 would show a different result.

#### HIGH PRICES OF 1879 TO 1882.

Mention under corn has been made of the special causes operating in this period causing an advance in the selling values of all grain fed to live stock. Other factors at the same time caused an advance in the price of wheat and all other grains consumed by man. The two sets of causes make, as will be seen later, the years 1879 to 1882 the most profitable for farmers of any equal length of time in the history of American farming. The London Economist says, in reviewing crop change in 1879: "The wheat crop and the harvest generally of 1879, is not only the worst in fourteen years (since the failure of 1867) but the worst that has occurred probably for thirty years." The European crop of 1880 was below the average and that of 1881 was a very poor one over a large portion of the United States, especially in the winter wheat sections. These causes made the price of wheat rule exceptionally high until the summer of 1882, when the price broke after the winter wheat had been marketed but before the spring wheat farmers had harvested their grain.

## FALL OF PRICES SINCE 1881.

The causes above narrated, which temporarily and artificially raised the price of wheat from 1879 to 1882, added twenty cents a bushel on an average to the selling price of spring wheat and also to that of winter wheat in the Mississippi Valley. With the cessation of the causes producing this temporary elevation of prices those prices dropped back in 1883 to 1886 to what may be called their earlier level. And yet neither in the six winter wheat nor in the four spring wheat states were the farm or home gold average values as great in 1883 to 1886 as in the years 1875 to 1878. The decline in the winter wheat states, when comparing these two four-year periods, was 14.7 cents and in the spring wheat states it was 8.1 cents a bushel. A part, if not the whole, of this decline was the final result of that revolution in the relative importance of winter and spring wheat that began in 1870. The prices of American spring wheat and especially of hard Minnesota wheat at first went up without affecting the other wheat prices of the world. But with the growth in immense quantities of spring wheat in the United States and Russia, with the use of the "new process" in all lands, winter and spring wheat prices came to a common level. It is impossible at present exactly to estimate the effect of changing milling inventions and processes upon the actual prices of winter and spring wheat. We know, however, that some way the change of forty cents a bushel in the relative price shown in Table D of the two kinds of wheat has been taken from one kind or divided between the two. That change of forty cents a bushel accounts for over three-fourths the price decline shown in Tables D and E between the four-year periods 1867 to 1870 and 1891 to 1893. The rest of the decline in wheat prices, about eleven cents a bushel on an average, in the Mississippi Valley is due to other and special causes. Mention of some of these will now be made. Among these causes reference will first be made to the

## INCREASING USE OF OATMEAL AS AN ARTICLE OF HUMAN FOOD IN THE UNITED STATES.

Mention has been made of this change in the preceding chapter. It was there shown how this fact had assisted in marketing an increasing per capita oat crop at advancing prices. The average oat crop had increased between 1870 and 1894 by about 4.5 bushels for every person in the nation. This was seventy per cent of the average per capita oat crop before the earlier year. This increased



use of oatmeal by the American people must be taken into consideration in any calculation of or investigation into the causes producing a decline in average wheat prices since 1873. It accounts for a portion of the decline of eleven cents in spring wheat states since 1867.

#### FOREIGN CUSTOM TARIFFS AND RECIPROCITY LAWS.

Another and very potent factor that has been operative in depressing American wheat prices is the effect of the hostile tariffs of France, Germany, and some other foreign countries. Those tariffs have aided in causing the exportation of wheat as well as of meat to be materially less than it would have been but for their influence. The lessened meat shipments have depressed the farm value of corn, oats, and everything fed to live stock. The price of wheat has been affected in two ways by these hostile tariffs. (1) A decrease in the relative foreign demand for wheat has directly depressed wheat prices. (2) The price of one grain always affects that of others by sympathy, as was stated in the introductory chapter in the quotation from Professor Rogers, and hence the decline in corn and oat values following foreign restricted custom regulations of American meat imports, intensified the first effect. The effect of the introduction of new processes of milling wheat and the result of these restricted custom regulations of foreign countries doubtless explain all decline in American states before 1893. There was, however, another factor greatly disturbing prices in the states bordering on the ocean. That was the effect of changing railway rates, to be mentioned later.

#### EFFECT OF THE PANIC OF 1893.

The general effect of hostile foreign tariffs has been heightened since 1893 by the repeal of the reciprocity clauses of the tariff legislation of the United States. The uncertainty concerning tariff and financial legislation has also since 1893 been a powerful factor depressing wheat and all other prices. The enforced idleness of vast numbers of the people since that year has lessened their purchasing power, and so assisted in depressing the prices of all the great agricultural staples. In fact every economic force operative in the United States in 1893 to produce the panic of that year and all the results accompanying that panic have coöperated to depress the selling price of the produce of the American farm. Would we

measure the loss resulting from that panic to the farmers of the United States on the wheat crop we need but to compare its average price for the last three years with that of the four-year period ending with 1894. The difference is not far from fifteen cents a bushel. This represents a total loss for the nation of not far from \$60,000,000 annually. This loss places a heavy burden upon the farmer and upon all classes. Mention has been made of some of the probable causes of that financial panic. Those alleged causes may not be the correct ones. This much, however, is certain: No part of that loss since 1893 has been caused by the legislation of 1873, since no trace of a general price decline can be found in the spring wheat states of the Mississippi Valley before 1893. There had been a rise between 1870 and 1882 and a subsequent fall in spring wheat prices due to the revolution in the methods of milling already explained. There had been a temporary rise of prices in all states of all kinds of wheat due to the demand for American wheat and meats in 1879 to 1882, and also a temporary fall after those years due to a cessation of that factor. But that is all the decline until 1893. Hence the declaration that the present exceptionally low wheat prices are not connected in the least with the silver legislation of 1873 but more directly with the special and recent factors producing the panic of 1893 and continuing its effects down to the present date.

#### THE EFFECT OF CHANGING FOREIGN DEMAND UPON AMERICAN WHEAT PRICES

has been incidently referred to when referring to the special causes elevating wheat prices in 1867 to 1870 and 1879 to 1880, and depressing them immediately after those periods. To show more fully the effect of changing foreign demand upon American wheat prices a mass of information has been tabulated and presented in Table IV. (y) concerning wheat prices and railway rates. As showing something of the effect of changing export demand upon American wheat prices there is here given the following summary:

TABLE G.

A comparative exhibit in bushels of the per capita wheat product and export of the United States and the average gold home or farm values of wheat in cents in the four central Mississippi states of Iowa, Minnesota, Kansas, and Nebraska, by four and seven-year periods, from 1862 to 1894 inclusive :

YEARS.	PER CAPITA.		Average Values Four States.
	Product of Wheat.	Export of Wheat.	
1867-70 .....	5.61	1.02	77.4
1871-74 .....	5.85	1.55	80.6
1875-78 .....	6.72	2.03	77.5
1879-82 .....	8.13	3.14	95.7
1883-86 .....	7.08	2.22	69.4
1887-90 .....	6.54	1.76	75.1
1891-94 .....	6.75	2.25	65.8
1867-73 .....	5.61	1.27	72.8
1874-80 .....	7.26	2.50	74.6
1881-87 .....	7.23	2.29	70.5
1888-94 .....	6.60	2.30	71.4

The per capita product is for the calendar years, while that of wheat export is for the government fiscal year closing June 30th, after the close of the corresponding calendar years.

Turning to this table, it is noted in the seven-year periods that in these four central wheat growing states of the Mississippi Valley the average home gold value advanced every time that the per capita export advanced and fell every time that export decreased. In the four-year periods there are two exceptions to this rule, the exceptions being easily explained by reference to local causes. The effect of the special demand for American wheat in Europe in 1879 to 1882 is best shown in the four-year periods. In that special period the export per capita was increased by over a bushel and the average price advanced 18.2 cents per bushel in the Mississippi Valley. With the cessation of the special European demand the per capita export decreased in the next four-year period by ninety-two hundredths of a bushel, and prices dropped 26.3 cents a bushel. While the export of American wheat is not the only factor controlling its farm value, this table shows conclusively the great influence of export demand over those prices. We have in the decrease of export since 1881 an explanation of a portion at least of the fall in prices that has occurred since that time.

THE LOSSES AND GAINS TO FARMERS IN THE NORTHWEST BY DECLINING  
WHEAT PRICES

Can be estimated in many ways. One method is to take the changing average values per bushel of the wheat exported from the



United States as the basis of such estimates. It is assumed in this estimate that the loss to these farmers of the Mississippi Valley is measured by this decline. That is a mistake. The decline in export prices measures more accurately the loss to the railroads in the sums realized by them in their carrying charges for a bushel of wheat from the West to the East. The loss to the Western farmer is the change in the farm values of the wheat raised by him and exported. In the earlier years, from 1860 to 1875, the American wheat exported was mainly red winter, now it is largely either a hard or a common spring. The export of flour is almost wholly that made from Northwestern wheat. The decline in export values marks the decline of two things: (1) The railway charges from the Mississippi Valley to the seaboard; and (2) the decline in winter wheat prices as the result of milling inventions and the substitution of spring wheat for winter in our exportation. To show how little the farmers of the Northwestern states have lost by the falling export values of wheat there is given in Table IV. (y), an exhibit by years and periods of years of the gain or loss that for a given year or period would have come to the Iowa farmers on an amount of wheat equal to that exported had that wheat been raised and sold by them for the average price of the four states of Iowa, Minnesota, Kansas, and Nebraska for 1869 to 1871 instead of the prices that actually prevailed in Iowa in the given year or period. There is condensed in Table H a summary of the same.

TABLE H.

An exhibit by periods of seven years of the wheat and wheat flour in bushels of wheat exported from the United States from 1862 to 1894, inclusive, together with an exhibit of the loss or gain in dollars gold that would have resulted if in each year this wheat, instead of being sold for the average gold farm prices that prevailed in Iowa, had been sold by the farmers at the average price that prevailed in the four states of Iowa, Minnesota, Kansas, and Nebraska in 1868 to 1871:

YEARS.	Bushels of Wheat Exported.	Gain or Loss in Dollars when Comparing the Actual Price in Iowa with the Average of 1868 to 1871, Four States.
1862-66.....	151,864,796	— 13,916,208
1867-73.....	345,039,001	+ 16,352,631
1874-80.....	811,089,069	+ 67,892,635
1881-87.....	881,804,454	+ 35,265,365
1888-94.....	1,630,886,819	— 7,562,650
1862-94.....	3,220,684,139	+ 98,031,773
1868-94.....	3,068,819,343	+ 111,947,981

The farmers of Iowa instead of having lost by the decreased export price of wheat have actually gained much by the price changes of wheat since 1871. Their total gain since 1867 in this way on a quantity of wheat equal to that exported from the country would amount to about \$112,000,000. Had the figures of Minnesota been chosen instead of those of Iowa for this exhibit the gain would have been about twice this sum.

But while the farmers in the great central spring wheat states of the West have lost nothing by falling export prices between 1867 and 1893, it is quite otherwise with the farmers on the Atlantic or Pacific seaboard. They have lost on an average all the decline shown in Table IV. (y) due to declining railway rates. They have further lost the monopoly of wheat for export, and that has passed to the spring wheat states. The total amount of this loss for the seaboard farmer by declining freight rates and changed methods of milling is shown in Table (y). The average value of the wheat exported from the United States from June, 1868, to June, 1871, was \$1.36 a bushel in currency and \$1.134 in gold. In the table there is shown for each year and period the difference between this price and the average gold export price of that year or period. This column of differences measures the decline in gold export values and the resulting loss to the seaboard winter wheat farmer on a bushel of wheat. The calculation is made showing the total amount of this loss on a quantity of wheat equal to that exported. The result is also presented in Table (y). In contrast with the results shown in the same table for the Iowa farmer, it is well to mark the results. Where the Iowa farmers would show a gain of \$111,947,981 between 1868 and 1895 the seaboard farmers on the same quantity of wheat have suffered a relative loss of \$425,140,147. The contrast emphasizes the vast economic and social results to the people of the United States from changing railway rates and improved methods of making fine flour from wheat. In the column showing the difference between average gold home values in Iowa and the average annual export price of domestic wheat there can be seen a great decline since 1862. The average difference from 1862 to 1865 was nearly eighty cents in currency or forty cents in gold. In the last four years it was but little more than fifteen cents in gold. This decrease marks the decline of freight rates and also the effect of substituting spring for winter wheat in our exports. In this column of differences are found some figures for a few years, 1865 to 1867, that may for some require explanation. The Iowa prices are for the crop year and represent the average price at the time of the harvest. The export prices

are the average for the fiscal year ending the next June. When the price was low, as in Iowa in the fall of 1864, and then rose for the nation during the period of export, we note the extremely large difference found in the fiscal year 1865. The opposite movement of prices after the harvest gives rise to the low difference found in the fiscal year 1867. Variations due to kindred price movements may be noted in other years, notably 1895, 1889, and 1877. Having reviewed the numerous factors that have variously affected wheat prices in the United States, at one time and in one section elevating them and at others depressing them, there will now be briefly presented calculations showing, so far as possible, the effect of all these conflicting forces upon the average wheat values of the United States. First, consideration will be given to the

#### CORRECTED AVERAGE VALUES.

The tables present for wheat, as for all the other agricultural staples, the simple and average values for all the states and groups, and also for the groups those averages corrected to allow for the effect upon statistics of the opening up of wheat fields in more distant regions. Tables (d), (h), and (j) give for the groups and for the nation those values. A comparative summary of the same for the seven-year periods is, however, here presented for all the groups mentioned above.



TABLE I.

A comparative exhibit of the simple and corrected gold farm values, per ton in dollars and per bushel in cents, of the wheat raised in the selected groups of ten, seven, and seventeen states and in the nation, showing the effect upon prices of grain fields shifting to cheaper and more distant sections :

YEARS.	TEN STATES.			SEVEN STATES.		
	Simple Averages, Per Ton.	Corrected Averages.		Simple Averages, Per Ton.	Corrected Averages.	
		Per Ton.	Per Bushel.		Per Ton.	Per Bushel.
1862-66.....	28.35	27.64	82.9	41.51	41.51	124.5
1867-73.....	32.00	32.32	96.6	42.51	42.19	126.6
1874-80.....	29.44	29.27	87.8	37.22	37.20	111.6
1881-87.....	26.11	26.40	79.2	30.58	30.90	92.7
1888-94.....	23.12	23.49	70.5	26.15	26.59	79.8

YEARS.	SEVENTEEN STATES.			NATION.		
	Simple Averages Per Ton.	Corrected Averages.		Simple Averages, Per Ton.	Corrected Averages.	
		Per Ton.	Per Bushel.		Per Ton.	Per Bushel.
1862-66.....	31.00	31.06	93.2	31.38	31.44	94.3
1867-73.....	34.81	34.67	104.0	35.68	35.54	106.6
1874-80.....	31.43	31.23	93.7	31.75	31.55	94.7
1881-87.....	27.21	27.51	82.5	27.13	27.43	82.3
1888-94.....	23.86	24.26	72.8	23.69	24.09	72.3

In the ten states the corrected values show when comparing 1862 to 1868 with 1888 to 1894 a decline of \$1.08 a ton, or three cents a bushel less than simple average values. The increased production of wheat upon cheaper and more distant lands has therefore caused in the statistics an apparent decline of that amount in addition to the actual decline. In the seven states this change in statistics was only forty-four cents a ton. In the seventeen states it was \$1.34 per ton, or four cents a bushel. Assuming that the correction for the nation is the same as for the seventeen states, as was done in preceding chapters, the proper calculations are made for the nation and shown in the tables.

All of these groups and the nation show a decline for both the simple and corrected average gold values. By subtracting from the values for the several periods the values for the last one we have an exhibit of the amount of the decline that has taken place between the last and the preceding periods. In Table D was shown the decline in gold farm values that had resulted from the

introduction of the "new process" of milling. Comparisons will now be made between this decline due to the introduction of the "new process" of milling and the total decline in gold farm values of wheat in the nation.

TABLE J.

A comparative exhibit in cents of the decline in the gold prices of wheat per bushel that has taken place in thirty-three years in the nation and in the selected group of seventeen states and the corresponding decline caused in six Western states by the introduction of the "new process" in milling. The table shows the excess of the prices in the several periods over those of 1888 to 1894:

YEARS.	TOTAL DECLINE IN—		Decline in Six Winter Wheat States Caused by the "New Process."
	Seventeen States.	Nation.	
1862-66.....	20.4	22.0	17.8
1867-73.....	31.2	34.3	28.7
1874-80.....	20.9	22.4	15.5
1881-87.....	9.7	10.0	9.5
1888-94.....			

The decline since the period 1867 to 1873 has, for the nation, been 5.6 cents more than the relative decline caused in the six special winter wheat states as the result of the introduction of the "new process" of milling. This extra decline of 5.6 cents a bushel is all accounted for by the effect of lessened cost of transportation upon the prices of wheat in the seaboard states of the American Union. This analysis leads us to the conclusion that there had been no decline in the average gold farm value of wheat in the United States before 1893 or 1894 that was not caused either by reduced transportation charges or by the introduction of the new processes of milling.

The same conclusion is reached another way by the calculation whose results are shown in Tables (d), (h), and (j), giving the relative price of wheat in the several groups after allowance has been made for the influence of changing freight rates and local causes upon average gold farm values. In the case of wheat, among the local causes whose results are reckoned with in the calculations are the local effects upon prices of the introduction of the "new process" of milling. Turning to the tables mentioned, we note for the several seven-year periods the relative price movements shown by the index numbers, after allowance is made for the effect of these local causes upon prices.

TABLE K.

A comparative exhibit by index numbers of the price movement of wheat in three selected groups of states after allowance has been made for the effect upon the gold farm values of wheat and of changing railway rates and of new methods of milling and other local causes:

YEARS.	INDEX NUMBERS FOR		
	Ten States.	Seven States.	Seventeen States.
1862-66.....	92	98	94
1867-73.....	98	102	99
1874-80.....	97	103	99
1881-87.....	91	96	93
1888-94.....	96	102	98

These index numbers confirm the conclusion reached by the preceding calculations that all permanent general decline in wheat prices to be found in the United States before 1893 and since 1862 had resulted either from the introduction of new methods of milling or in changed cost of transportation. Allowing for these two factors we note by the index numbers for the nation as a whole, as by the prices of Iowa and Minnesota, in the group of four central Western wheat states an upward rather than a downward tendency of wheat values. Wheat prices have been affected by more diverse factors and influences in the past thirty years than they ever were in an equal period of history. They have been thus influenced by more factors and influences than those of almost any other article of modern production and trade. An analysis of the results of all these forces modifying wheat prices leads to the same general conclusion that was derived from the study of the much more simple price movement of corn and oats. Preceding centuries had but one factor of price variation for food products outside of varying harvests. That one cause was changes in the money standard. The past thirty years have seen with wheat a number of factors, distinctively characteristic of the nineteenth century, all powerfully affecting prices. They have created a difference in relative values in Kansas and Minnesota of fifty-two cents a bushel since 1862. They have played havoc with men's preconceived notions about wheat and wheat prices. They have revolutionized the relative importance of winter and spring wheat. They have lifted the spring wheat states of America and spring wheat sections of Russia and other countries into added economic importance and made them the present dominating factors in the world's wheat markets. Those changes peculiar to and characteristic of the nineteenth century must be reckoned with before we assume that our modern



price fluctuations are produced as were those of the middle ages by changes in the standard of money. Inventions and discoveries all modify prices and values. We live in the nineteenth century. We must reckon with its forces and tendencies. To take account of those forces and tendencies as they affect wheat prices has been the object of this investigation. Its results show that nineteenth century forces are able to account for all recent price variations in the great staples of the American farm. The so-called "crime of 1873" has had no influence upon grain prices in the United States. Instead we note a

"SPITE OF 1873 AGAINST WINTER WHEAT."

Inventions in milling dating their commercial importance from 1873 have injured the farmers raising winter wheat, and changed farm values the world over. In connection with changing freight rates these inventions have done more to make and unmake farm values, create and destroy the relative wealth and prosperity of farmers in different parts of the world than have all past inventions of man. The resulting losses to farmers in the older sections of the world are simply stupendous. The social results are far-reaching. Their end cannot fail to be an ultimate benefit to the race, even though their advent and development have brought so much temporary loss and suffering to the unlucky farmers as we see in our day.

NOTE.—The United States Department of Agriculture did not make any estimate for Minnesota in 1866. That fact is reflected in the average values in that state for the period 1862 to 1866 in most tables. An estimate is made for the year 1866 and included in Table (o). Similar absence of government reports in several other states modify the ratios between gold and currency prices in the period. This is the case with Kentucky, California, Georgia, Texas, and Nebraska. A variation will be noticed for the gold average values in Tables (o), (p), and (q) from those recorded in the preliminary reports made by the commissioner and covering the same field. The variation is due to a change in the use of the gold ratios as explained in the introductory chapter.

TABLE IV. (a).

An exhibit by states for various years and periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the wheat raised in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas; together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period of years was of the average gold value in the same states for the year 1872.

## OHIO.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66	107,756,824	3,232,705	155,268,626	0.922	48.03	30.74	a 13.36	73
1867-70	74,600,000	2,238,000	112,498,000	1.176	50.27	39.21	b 13.52	93
1871-74	81,338,000	2,440,140	110,608,250	1.169	41.23	36.98	c 23.55	88
1875-78	98,370,000	2,951,100	104,593,200	1.018	35.44	33.92	.....	81
1879-82	168,355,825	5,050,675	185,668,104	1.103	.....	36.76	.....	88
1883-86	128,025,000	3,840,750	105,122,170	.881	.....	27.37	.....	65
1887-90	131,449,000	3,943,470	110,068,068	.837	.....	27.91	.....	66
1891-94	170,914,079	5,127,422	113,663,267	.665	.....	22.17	.....	53
1862-94	960,808,728	28,824,262	987,489,685	.930	34.26	31.01	.....	74
1862-66	107,756,824	3,232,705	155,268,626	.922	48.03	30.74	.....	73
1867-73	129,945,000	3,898,350	186,073,530	1.191	47.73	39.71	.....	95
1874-80	210,745,225	6,322,357	226,322,304	1.038	35.80	34.62	.....	82
1881-87	245,893,600	7,376,808	223,015,140	.907	.....	30.23	.....	72
1888-94	266,468,079	7,994,042	196,810,085	.739	.....	24.62	.....	59
1876-78	80,870,000	2,426,100	85,518,200	1.031	35.25	34.37	.....	82
1893-95	119,576,658	3,587,300	65,249,605	.546	.....	18.19	.....	43
1862 ....	30,796,032	923,881	29,564,190	.662	32.00	22.05	.....	53
1872 ....	18,203,000	546,090	25,848,260	1.260	47.33	41.98	.....	100
1895 ....	32,215,579	966,467	19,329,347	.600	.....	20.00	.....	48

## INDIANA.

1862-66	85,041,061	2,551,232	118,444,224	.892	46.43	29.72	a 13.14	76
1867-70	75,027,000	2,250,810	102,669,810	1.067	45.61	35.58	b 15.26	91
1871-74	82,734,000	2,482,020	97,108,500	1.053	39.12	35.09	c 22.13	90
1875-78	95,016,000	2,850,480	91,799,760	.925	32.21	30.82	.....	79
1879-82	170,291,518	5,108,745	181,143,673	1.064	.....	35.46	.....	91
1883-86	129,106,800	3,873,204	100,739,800	.780	.....	26.01	.....	67
1887-90	135,822,000	4,074,660	108,261,800	.797	.....	26.57	.....	68
1891-94	171,915,468	5,157,464	109,874,089	.639	.....	21.30	.....	55
1862-94	944,953,847	28,348,615	910,041,665	.883	32.10	29.43	.....	75
1862-66	85,041,061	2,551,232	118,444,224	.892	46.43	29.72	.....	76
1867-73	134,430,000	4,032,900	177,847,170	1.100	44.10	36.69	.....	94
1874-80	211,823,718	6,354,711	214,140,643	.975	33.70	32.59	.....	83
1881-87	243,749,600	7,312,488	208,709,890	.856	.....	28.54	.....	73
1888-94	269,909,468	8,097,284	190,899,738	.717	.....	23.58	.....	60
1876-78	77,736,000	2,332,080	75,038,160	.941	32.18	31.38	.....	80
1893-95	99,517,960	2,985,539	50,501,213	.508	.....	16.92	.....	43
1862 ....	20,292,160	608,765	17,857,101	.606	29.33	20.21	.....	52
1872 ....	19,381,000	581,430	25,582,920	1.171	44.00	39.03	.....	100
1895 ....	20,294,492	608,835	11,567,860	.570	.....	19.00	.....	49

TABLE IV. (a).—Continued.

## ILLINOIS.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862	32,213,500	966,405	24,482,260	.524	25.33	17.45		
1863	31,408,163	942,245	32,978,571	.675	35.00	22.51		48
1864	33,371,173	1,001,135	51,725,318	.718	51.67	23.92		66
1865	25,266,745	758,002	27,541,732	.778	36.33	25.94		71
1866	28,551,421	856,543	55,104,243	1.434	64.33	47.80		131
1867	28,000,000	840,000	55,160,000	1.422	65.67	47.41		130
1868	28,560,000	856,800	34,272,000	.884	40.00	29.48		81
1869	29,200,000	876,000	22,192,000	.626	25.33	20.87		57
1870	27,115,000	813,450	25,488,100	.849	31.33	28.29		78
1871	25,216,000	756,480	29,754,880	1.082	39.33	36.07		99
1872	24,711,000	741,330	30,394,530	1.091	41.00	36.37		100
1873	28,417,000	852,510	31,258,700	.987	36.67	32.89		90
1874	30,122,000	903,660	25,904,920	.764	28.67	25.48		70
1875	27,300,000	819,000	24,843,000	.806	30.33	26.88		74
1876	23,440,000	703,200	21,799,200	.875	31.00	29.17		80
1877	33,000,000	990,000	34,320,000	1.024	34.67	34.15		94
1878	31,620,000	948,600	23,715,000	.750		25.00		69
1879	44,896,830	1,346,905	48,039,608	1.070		35.67		98
1880	60,958,757	1,828,763	57,910,819	.950		31.67		87
1881	26,822,000	804,660	32,722,840	1.220		40.67		112
1882	52,302,900	1,569,087	44,980,494	.860		28.67		79
1883	22,150,000	664,500	20,378,000	.920		30.67		84
1884	32,374,000	971,220	20,395,620	.630		21.00		58
1885	10,683,000	320,490	8,653,230	.810		27.00		74
1886	27,562,000	826,860	19,017,780	.690		23.00		63
1887	36,861,000	1,105,830	25,802,700	.700		23.33		64
1888	33,556,000	1,006,680	31,207,080	.930		31.00		85
1889	38,014,000	1,140,420	26,609,666	.700		23.33		84
1890	18,161,000	544,830	15,800,153	.870		29.00		60
1891	35,025,000	1,050,750	29,771,230	.850		28.33		78
1892	28,370,000	851,100	17,873,247	.630		21.00		58
1893	15,507,313	465,219	7,908,730	.510		17.00		47
1894	33,312,370	999,371	14,990,567	.450		15.00		41
1895	19,060,712	571,821	10,102,177	.530		17.67		49
1862-66	150,811,002	4,524,330	191,832,124	.813	42.40	27.10	a 13.97	75
1867-70	112,875,000	3,386,250	137,112,100	1.243	40.49	31.42	b 8.49	86
1871-74	108,466,000	3,253,980	117,313,030	.971	36.05	32.37	c 12.37	89
1875-78	115,360,000	3,460,800	104,677,200	.867	30.25	28.91		79
1879-82	184,980,487	5,549,415	183,653,761	.993		33.09		91
1883-86	92,769,000	2,783,070	68,444,630	.738		24.59		68
1887-90	126,592,000	3,797,760	99,419,599	.785		26.18		72
1891-94	112,214,683	3,366,440	70,543,774	.629		20.96		58
1862-94	1,004,068,172	30,122,045	972,996,218	.857	32.30	28.55		78
1862-66	150,811,002	4,524,330	191,832,124	.813	42.40	27.10		75
1867-73	191,219,000	5,736,570	228,520,210	.987	39.84	32.89		90
1874-80	251,337,587	7,540,128	236,532,547	.911	31.37	30.37		84
1881-87	208,754,900	6,262,647	171,950,664	.824		27.46		76
1888-94	201,945,683	6,058,370	144,160,673	.714		23.80		65
1876-78	88,060,000	2,641,800	79,834,200	.884	30.22	29.46		81
1893-95	67,880,395	2,036,412	33,001,474	.486		16.21		44
1862	32,213,500	966,405	24,482,260	.524	25.33	17.45		48
1872	24,711,000	741,330	30,394,530	1.091	41.00	36.37		100
1895	19,060,712	571,821	10,102,177	.530		17.67		49



TABLE IV. (a).—Continued.

## MICHIGAN.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862	14,963,735	448,912	14,963,735	.690	33.33	22.97		53
1863	13,966,153	418,985	18,295,660	.842	43.67	28.08		65
1864	13,966,153	418,985	27,373,660	.908	65.33	30.25		70
1865	16,378,488	491,354	27,024,505	1.178	55.00	39.27		91
1866	14,740,639	442,219	37,588,600	1.895	85.00	63.15		146
1867	15,250,000	457,500	35,685,000	1.689	78.00	56.31		130
1868	16,012,000	480,360	26,259,680	1.209	54.67	40.29		93
1869	16,800,000	504,000	16,296,000	.799	32.33	26.64		62
1870	15,288,000	458,640	16,511,040	.975	36.00	32.51		75
1871	16,205,000	486,150	21,390,600	1.210	44.00	40.35		93
1872	13,936,000	418,080	20,346,560	1.295	48.67	43.17		100
1873	14,214,000	426,420	19,188,900	1.211	45.00	40.36		93
1874	17,341,000	520,230	18,728,280	.960	36.00	32.00		74
1875	16,870,000	506,100	19,400,500	1.019	38.33	33.69		79
1876	15,170,000	455,100	17,597,200	1.091	38.67	36.38		84
1877	21,890,000	656,700	26,705,800	1.202	40.67	40.06		93
1878	27,889,200	836,676	23,705,820	.850		28.33		66
1879	28,773,120	863,194	33,664,550	1.170		39.00		90
1880	33,155,865	994,676	32,161,189	.970		32.33		95
1881	21,220,000	636,600	26,525,000	1.250		41.67		77
1882	32,315,400	969,462	29,083,860	.900		30.00		69
1883	25,011,000	750,330	24,010,560	.960		32.00		74
1884	29,772,000	893,160	22,031,280	.722		24.07		56
1885	31,261,000	937,830	26,259,240	.840		28.00		65
1886	26,572,000	797,160	19,397,560	.730		24.33		56
1887	21,672,000	650,160	16,037,280	.740		24.67		57
1888	24,028,000	720,840	23,547,440	.980		32.67		76
1889	23,709,000	711,270	17,544,550	.740		24.67		57
1890	20,271,000	608,130	18,243,967	.900		30.00		69
1891	30,205,000	906,150	27,486,910	.910		30.33		70
1892	23,854,000	715,620	15,982,337	.670		22.33		52
1893	19,920,714	597,621	11,354,807	.570		19.00		40
1894	20,232,058	606,962	10,520,670	.520		17.33		44
1895	15,237,803	457,134	9,142,682	.600		20.00		46
1862-66	74,015,168	2,220,455	125,246,160	1.108	56.41	36.92	a-9.64	86
1867-70	63,350,000	1,900,500	94,751,720	1.159	49.86	38.65	b-19.87	90
1871-74	61,696,000	1,850,880	79,654,340	1.159	43.04	38.64	c-42.44	90
1875-78	81,819,200	2,454,576	87,409,320	1.024	35.61	34.12		79
1879-82	115,464,385	3,463,932	121,434,599	1.052		35.06		81
1883-86	112,616,000	3,378,480	91,698,640	.814		27.14		63
1887-90	89,680,000	2,690,400	75,373,237	.841		28.02		65
1891-94	94,211,772	2,826,353	65,344,724	.694		23.12		54
1862-94	692,852,525	20,785,576	740,912,740	.960	35.65	31.99		74
1862-66	74,015,168	2,220,455	125,246,160	1.108	56.41	36.92		86
1867-73	107,705,000	3,231,150	155,677,780	1.192	48.18	39.72		92
1874-80	161,089,185	4,832,676	171,963,339	.970	35.58	32.33		75
1881-87	187,823,400	5,634,702	163,344,780	.870		28.99		67
1888-94	162,219,772	4,866,593	124,680,681	.769		25.62		59
1876-78	64,949,200	1,948,476	68,008,820	1.021	34.91	34.04		79
1893-95	55,390,575	1,661,717	31,018,159	.560		18.67		43
1862	14,963,735	448,912	14,963,735	.689	33.33	22.96		53
1872	13,936,000	418,080	20,346,560	1.295	48.67	43.17		100
1895	15,237,803	457,134	9,142,682	.600		20.00		46

TABLE IV. (a).—Continued.

## WISCONSIN.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862-66 ..	96,392,297	2,891,769	112,438,474	.770	38.88	25.67	a-8.36	84
1867-70 ..	89,145,000	2,674,350	96,356,500	.843	36.03	28.09	b-14.53	92
1871-74 ..	85,501,000	2,565,030	84,274,390	.885	32.86	29.49	c-32.64	97
1875-78 ..	85,154,400	2,554,632	74,533,448	.829	29.18	27.64	.....	91
1879-82 ..	78,352,855	2,350,586	80,278,474	1.025	.....	34.15	.....	112
1883-86 ..	70,077,900	2,102,337	51,220,512	.731	.....	24.36	.....	80
1887-90 ..	56,951,000	1,708,530	44,217,693	.776	.....	25.88	.....	85
1891-94 ..	39,887,659	1,196,629	25,876,103	.649	.....	21.62	.....	71
1862-94 ..	601,462,111	18,043,863	569,195,594	.826	31.55	27.54	.....	90
1862-66 ..	96,392,297	2,891,769	112,438,474	.770	38.88	25.67	.....	84
1867-73 ..	156,210,000	4,686,300	165,329,010	.877	35.28	29.23	.....	96
1874-80 ..	140,810,835	4,224,325	127,878,412	.861	30.27	28.70	.....	94
1881-87 ..	124,273,300	3,728,199	101,816,222	.819	.....	27.31	.....	90
1888-94 ..	83,775,659	2,513,270	61,733,476	.737	.....	24.56	.....	80
1876-78 ..	59,954,400	1,798,632	51,601,448	.839	28.69	27.97	.....	92
1893-95 ..	26,646,879	799,406	13,849,843	.520	.....	17.33	.....	57
1862 ....	20,765,781	622,973	16,197,309	.537	26.00	17.91	.....	59
1872 ....	22,307,000	669,210	22,976,210	.914	34.33	30.45	.....	100
1895 ....	8,616,218	258,487	4,394,271	.510	.....	17.00	.....	56

## MISSOURI.

1862-66 ..	18,269,315	548,079	24,941,510	.874	45.51	29.13	a-7.22	70
1867-70 ..	24,568,000	737,040	30,046,430	.954	40.77	31.80	b-8.59	76
1871-74 ..	47,832,000	1,434,960	51,974,010	.995	36.99	33.18	c-11.53	80
1875-78 ..	66,596,000	1,997,880	57,696,920	.829	28.88	27.64	.....	66
1879-82 ..	104,302,334	3,129,070	101,063,425	.969	.....	32.31	.....	78
1883-86 ..	84,580,300	2,537,409	60,543,914	.716	.....	23.86	.....	57
1887-90 ..	84,517,000	2,535,510	61,326,032	.726	.....	24.19	.....	58
1891-94 ..	89,207,472	2,676,225	52,369,537	.587	.....	19.57	.....	47
1862-94 ..	519,872,421	15,596,173	439,961,778	.799	28.27	26.63	.....	64
1862-66 ..	18,269,315	548,079	24,941,510	.874	45.51	29.13	.....	70
1867-70 ..	57,015,000	1,710,450	69,250,890	1.029	41.21	34.29	.....	82
1874-80 ..	138,345,734	4,150,372	123,847,275	.866	29.84	28.86	.....	69
1881-87 ..	160,261,900	4,807,857	125,427,814	.783	.....	25.09	.....	62
1888-94 ..	145,980,472	4,379,415	96,494,289	.661	.....	22.03	.....	63
1876-78 ..	55,436,000	1,663,080	47,094,920	.828	28.32	27.61	.....	66
1893-95 ..	57,141,440	1,714,243	26,815,195	.469	.....	15.64	.....	38
1862 ....	5,636,781	169,103	4,340,321	.531	25.67	17.69	.....	42
1872 ....	7,695,000	230,850	10,849,950	1.251	47.00	41.69	.....	100
1895 ....	18,499,968	554,999	9,434,984	.510	.....	17.00	.....	41

TABLE IV. (a).—Continued.

## IOWA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862	10,541,506	316,245	7,273,639	.475	23.00	15.84		63
1863	12,649,807	379,494	9,613,853	.488	25.33	16.28		65
1864	12,649,807	379,495	17,013,990	.623	44.82	20.75		83
1865	13,698,542	410,956	13,702,788	.714	33.34	23.86		95
1866	15,753,323	472,600	22,369,718	1.055	47.33	35.17		140
1867	16,300,000	489,000	23,309,000	1.033	47.66	34.41		137
1868	20,300,000	609,000	19,285,000	.706	31.67	23.34		93
1869	23,500,000	705,000	12,220,000	.428	17.33	14.28		57
1870	20,445,000	613,350	15,947,100	.704	26.00	23.48		93
1871	18,400,000	552,000	17,664,000	.880	32.00	29.34		117
1872	22,080,000	662,400	18,768,000	.721	28.33	25.13		100
1873	34,600,000	1,038,000	27,334,000	.709	26.33	23.62		94
1874	33,908,000	1,017,240	22,040,200	.578	21.67	19.26		77
1875	29,800,000	894,000	21,158,000	.629	23.66	20.97		83
1876	17,600,000	528,000	15,840,000	.847	30.00	28.23		112
1877	37,810,000	1,134,300	32,894,700	.857	29.00	28.57		114
1878	30,440,960	913,229	15,220,480	.500		16.67		86
1879	32,786,880	983,606	30,163,930	.920		30.56		122
1880	33,178,205	995,346	27,206,128	.820		27.33		109
1881	18,248,000	547,440	19,342,880	1.06		35.33		141
1882	25,487,200	764,616	17,841,040	.700		23.33		93
1883	27,518,800	825,564	22,015,040	.800		26.66		106
1884	31,270,000	938,100	17,198,500	.550		18.33		73
1885	30,332,000	909,960	20,322,440	.670		22.33		89
1886	32,455,000	973,650	19,473,000	.600		20.00		80
1887	26,837,000	805,110	16,370,570	.610		20.33		81
1888	24,196,000	725,880	20,566,600	.850		28.33		113
1889	21,023,000	630,690	13,244,728	.630		21.00		84
1890	19,041,000	571,230	15,233,123	.800		26.66		106
1891	27,586,000	827,580	22,345,025	.810		27.00		107
1892	7,257,000	217,710	4,334,335	.600		20.00		80
1893	6,749,224	202,477	3,307,120	.490		16.33		65
1894	10,737,400	322,122	5,368,700	.500		16.66		66
1895	13,654,778	409,643	6,281,198	.460		15.33		61
1862-66	65,292,985	1,958,790	69,973,988	.696	35.72	23.21	a-10.38	92
1867-70	80,545,000	2,416,350	70,761,100	.689	29.28	22.97	b-7.38	91
1871-74	108,988,000	3,269,640	85,806,200	.706	26.24	23.54	c-11.66	94
1875-78	115,650,960	3,469,529	85,113,180	.703	24.53	23.42		93
1879-82	109,700,285	3,291,008	94,553,978	.862		28.73		114
1883-86	121,575,800	3,647,274	79,008,980	.650		21.66		86
1887-90	91,097,000	2,732,910	65,415,021	.718		23.93		95
1891-94	52,329,624	1,569,889	35,375,180	.676		22.53		90
1862-94	745,179,654	22,355,390	583,007,627	.716	26.21	23.87		95
1862-66	65,292,985	1,958,790	69,973,988	.696	35.72	23.21		92
1867-73	155,625,000	4,668,750	134,527,100	.725	28.81	24.17		96
1874-80	215,524,045	6,465,721	164,523,438	.734	25.45	24.47		97
1881-87	192,148,000	5,764,440	132,563,470	.690		23.00		92
1888-94	116,589,624	3,497,689	84,419,631	.724		24.14		96
1876-78	85,850,960	2,575,529	63,955,180	.726	24.83	24.21		96
1893-95	31,141,402	934,242	14,957,018	.480		16.01		64
1862	10,541,506	316,245	7,273,639	.476	23.00	15.85		63
1872	22,080,000	662,400	18,768,000	.754	28.33	25.13		100
1895	13,654,778	409,644	6,281,198	.460		15.33		61



TABLE IV. (a).—Continued.

## MINNESOTA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862	2,927,749	87,832	1,639,539	.376	18.67	12.86		52
1863	2,634,975	79,049	1,844,483	.450	23.33	15.00		61
1864	2,634,975	79,050	2,995,088	.526	37.88	17.54		71
1865	3,425,467	102,764	2,740,374	.571	26.67	19.04		78
1866								
1867	10,000,000	300,000	14,800,000	1.069	49.33	35.62		145
1868	14,500,000	435,000	12,035,000	.612	27.67	20.39		83
1869	19,000,000	570,000	11,210,000	.486	19.67	16.21		66
1870	16,022,000	480,660	13,298,260	.749	27.67	24.98		102
1871	12,016,000	360,480	12,016,000	.917	33.33	30.57		125
1872	23,200,000	696,000	19,256,000	.736	27.67	24.54		100
1873	28,056,000	841,680	22,444,800	.718	26.67	23.92		97
1874	21,338,000	640,140	14,936,600	.622	23.33	20.74		85
1875	27,200,000	816,000	23,392,000	.762	28.67	25.40		104
1876	16,000,000	480,000	14,400,000	.847	30.00	28.23		115
1877	33,324,346	999,730	30,325,154	.896	30.33	29.88		122
1878	28,824,000	864,720	14,700,240	.510		17.00		69
1879	31,886,520	956,596	29,973,329	.940		31.33		128
1880	40,395,696	1,211,871	35,144,256	.870		29.00		118
1881	35,952,000	1,078,560	38,109,120	1.060		35.33		144
1882	33,030,500	990,915	27,085,010	.820		27.33		111
1883	33,773,200	1,013,196	27,018,560	.800		26.67		109
1884	41,307,000	1,239,210	20,653,500	.500		16.67		68
1885	34,285,000	1,028,550	23,909,500	.700		23.33		95
1886	42,856,000	1,285,680	26,142,160	.610		20.34		83
1887	36,299,000	1,088,970	21,416,410	.590		19.67		80
1888	27,881,000	836,430	25,650,520	.920		30.67		125
1889	45,456,000	1,363,680	30,455,338	.670		22.33		91
1890	38,356,000	1,150,680	31,068,187	.810		27.00		110
1891	55,333,000	1,659,900	43,159,692	.780		26.00		106
1892	41,210,000	1,236,300	25,138,382	.610		20.33		83
1893	30,694,685	920,840	15,654,289	.510		17.00		69
1894	37,752,453	1,132,574	18,498,702	.490		16.33		67
1895	65,584,155	1,967,525	28,857,028	.440		14.67		60
1862-66	11,623,166	348,695	9,219,484	.487	26.44	16.23	a-12.07	66
1867-70	59,522,000	1,785,660	51,343,260	.686	28.75	22.85	b-26.53	93
1871-74	84,610,000	2,538,300	68,653,400	.727	27.05	24.23	c-51.89	99
1875-78	105,348,346	3,160,450	82,817,394	.749	26.20	24.95		102
1879-82	141,264,716	4,237,942	130,311,715	.923		30.75		125
1883-86	152,221,200	4,566,636	97,813,720	.643		21.42		87
1887-90	147,992,000	4,439,760	108,590,455	.734		24.46		100
1891-94	164,990,138	4,949,704	102,451,065	.621		20.70		84
1862-94	867,571,566	26,027,147	651,200,493	.722	25.02	24.05		98
1862-66	11,623,166	348,695	9,219,484	.487	26.44	16.23		66
1867-73	122,794,000	3,683,820	105,060,060	.725	28.52	24.17		98
1874-80	198,968,562	5,969,057	162,871,579	.790	27.29	26.34		107
1881-87	257,502,700	7,725,081	184,424,260	.716		23.88		97
1888-94	276,683,138	8,300,494	189,625,110	.686		22.85		93
1876-78	78,148,346	2,344,450	59,425,394	.742	25.35	24.72		101
1893-95	134,031,293	4,020,939	63,010,019	.470		15.67		64
1862	2,927,749	87,832	1,639,539	.386	18.67	12.86		52
1872	23,200,000	696,000	19,256,000	.736	27.67	24.54		100
1895	65,584,155	1,967,525	28,857,028	.440		14.67		60

## NEBRASKA.

1862-66	550,187	16,506	754,001	.909	45.68	30.30	a-4.32	131
1867-70	3,913,000	117,390	2,895,120	.495	24.66	16.49	b-9.59	72
1871-74	11,592,900	347,760	8,502,300	.658	24.45	21.92	c-13.82	95
1875-78	27,242,900	817,287	14,824,021	.530	18.14	17.66	.....	77
1879-82	58,106,267	1,743,188	46,075,970	.793	.....	26.43	.....	115
1883-86	93,083,300	2,792,499	50,636,400	.544	.....	18.13	.....	79
1887-90	63,256,000	1,897,680	41,232,197	.652	.....	21.73	.....	94
1891-94	53,192,789	1,595,783	29,598,415	.517	.....	18.55	.....	90
1862-94	310,936,443	9,328,093	194,518,424	.618	20.85	20.59	.....	89

TABLE IV. (a).—Continued.

NEBRASKA—Continued.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Go'd.	Per Ton.			
					Currency	Gold.		
1862-66 ..	550,187	16,506	754,001	.909	45.68	30.30	.....	131
1867-73 ..	11,886,000	356,580	9,226,020	.639	25.87	21.31	.....	92
1874-80 ..	56,828,167	1,704,844	37,385,591	.647	21.93	21.56	.....	93
1881-87 ..	141,808,300	4,254,249	85,112,250	.600	.....	20.01	.....	87
1888-94 ..	99,863,789	2,995,914	62,040,562	.621	.....	20.71	.....	90
1876-78 ..	23,842,900	715,287	12,648,021	.517	17.68	17.23	.....	75
1893-95 ..	34,229,813	1,026,894	14,479,867	.423	.....	14.10	.....	61
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	2,560,000	76,800	1,996,800	.692	26.00	23.06	.....	100
1895 .....	14,787,024	443,610	5,914,810	.400	.....	13.33	.....	58

## KANSAS.

1862 ....	202,232	6,067	149,652	.510	24.67	17.00	.....	40
1863 ....	262,953	7,889	231,399	.566	29.33	18.86	.....	45
1864 ....	201,598	6,048	405,212	.931	67.00	31.02	.....	74
1865 ....	191,519	5,746	338,989	1.264	59.00	42.12	.....	100
1866 ....	260,465	7,814	497,488	1.419	63.67	47.30	.....	113
1867 ....	1,250,000	37,500	2,300,000	1.328	61.33	44.26	.....	105
1868 ....	1,537,000	46,110	2,074,950	.995	45.00	33.16	.....	79
1869 ....	2,800,000	84,000	2,212,000	.651	26.33	21.70	.....	52
1870 ....	2,343,000	70,290	2,014,980	.777	28.67	25.90	.....	62
1871 ....	2,694,000	80,820	3,044,220	1.036	37.67	34.54	.....	82
1872 ....	2,155,000	64,650	3,060,100	.260	47.33	41.98	.....	100
1873 ....	4,330,000	129,900	4,430,000	.918	34.10	30.60	.....	73
1874 ....	9,455,000	283,650	7,942,200	.747	28.00	24.92	.....	50
1875 ....	12,700,000	381,000	11,049,000	.771	29.00	25.69	.....	61
1876 ....	16,510,000	495,300	14,198,600	.809	28.66	26.98	.....	64
1877 ....	14,400,000	432,000	11,808,000	.808	27.33	26.92	.....	64
1878 ....	27,221,000	816,630	16,060,390	.590	.....	19.67	.....	47
1879 ....	18,089,500	542,685	16,069,655	.890	.....	29.67	.....	71
1880 ....	20,336,000	610,080	14,235,200	.700	.....	23.33	.....	56
1881 ....	19,909,000	597,270	20,904,450	1.050	.....	35.00	.....	83
1882 ....	31,248,000	937,440	20,936,160	.670	.....	22.33	.....	53
1883 ....	26,851,100	805,533	20,943,858	.780	.....	26.00	.....	62
1884 ....	34,990,000	1,049,700	15,745,500	.450	.....	15.00	.....	36
1885 ....	11,197,000	335,910	7,278,050	.650	.....	21.66	.....	52
1886 ....	14,556,000	436,680	8,442,480	.581	.....	19.38	.....	46
1887 ....	7,607,000	228,210	4,640,270	.610	.....	20.33	.....	48
1888 ....	15,960,000	478,800	14,044,800	.880	.....	29.33	.....	70
1889 ....	30,912,000	927,360	17,001,600	.550	.....	18.31	.....	44
1890 ....	28,195,000	845,850	21,709,842	.770	.....	25.66	.....	61
1891 ....	54,866,000	1,645,980	40,052,384	.730	.....	24.33	.....	59
1892 ....	70,831,000	2,124,930	36,831,911	.520	.....	17.33	.....	41
1893 ....	23,251,973	697,559	9,765,829	.420	.....	14.00	.....	33
1894 ....	35,315,259	1,059,458	15,538,714	.440	.....	14.66	.....	35
1895 ....	22,919,566	687,587	10,313,805	.450	.....	15.00	.....	36
1862-66 ..	1,118,767	33,564	1,622,740	.940	48.35	31.32	a-7.54	75
1867-70 ..	7,930,000	237,900	8,601,930	.862	36.16	28.72	b-10.57	68
1871-74 ..	18,634,000	559,020	18,476,520	.888	33.05	29.59	c-16.76	70
1875-78 ..	70,831,000	2,124,930	53,115,990	.718	25.00	23.93	.....	57
1879-82 ..	89,582,500	2,687,475	72,175,465	.806	.....	26.86	.....	64
1883-86 ..	87,594,100	2,627,823	52,409,888	.599	.....	19.95	.....	48
1887-90 ..	82,674,000	2,480,220	57,396,512	.694	.....	23.14	.....	55
1891-94 ..	184,264,232	5,527,927	102,188,838	.555	.....	18.49	.....	44
1862-94 ..	542,628,599	16,278,859	365,987,883	.662	22.48	22.08	.....	53
1862-66 ..	1,118,767	33,564	1,622,740	.940	48.35	31.32	.....	75
1867-73 ..	17,109,000	513,270	19,136,250	.953	37.28	31.78	.....	76
1874-80 ..	118,711,500	3,561,345	91,393,045	.743	25.66	24.78	.....	50
1881-87 ..	146,358,100	4,390,743	98,890,768	.676	.....	22.52	.....	54
1888-94 ..	259,331,232	7,779,937	154,945,080	.598	.....	19.92	.....	47
1876-78 ..	58,131,000	1,743,930	42,066,990	.706	24.12	23.52	.....	56
1893-95 ..	81,486,798	2,444,604	35,618,348	.437	.....	14.57	.....	35
1862 ....	202,232	6,067	149,652	.510	24.67	17.00	.....	40
1872 ....	2,155,000	64,650	3,060,100	1.259	47.33	41.98	.....	100
1895 ....	22,919,566	687,587	10,313,805	.450	.....	15.00	.....	36

TABLE IV. (b).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the differences between the average farm or home gold values of wheat per ton in the states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Minnesota, Nebraska, and Kansas, and the corresponding values in Iowa, together with an exhibit of the fluctuations in said states that have occurred in thirty-five years in those average values by reason of changes in transportation charges and from various local causes of price variation.

YEARS.	DIFFERENCES.									
	Ohio.	Ind.	Ill.	Mich.	Wis.	Mo.	Minn.	Neb.	Kan.	Av'ge Ten States.
1862-66.....	7.53	6.51	3.89	13.71	2.46	5.92	6.98	7.09	8.11	6.56
1867-70.....	16.24	12.61	8.45	15.68	5.12	8.83	.12	6.48	5.75	9.85
1871-74.....	13.44	11.55	8.83	15.10	5.95	9.64	.69	1.62	6.05	9.79
1875-78.....	10.50	7.40	5.49	10.70	4.22	4.22	1.53	5.76	.51	6.93
1879-82.....	8.03	6.73	4.36	6.33	5.42	3.58	2.02	2.30	1.87	6.02
1883-86.....	5.71	4.35	2.93	5.48	2.70	2.20	.24	3.53	1.71	4.47
1887-90.....	3.98	2.64	2.25	4.09	1.95	.26	.53	2.20	.79	3.80
1891-94.....	.60	1.23	1.57	.59	.91	2.96	1.83	3.98	4.04	.76
1862-66.....	7.53	6.51	3.89	13.71	2.46	5.92	6.98	7.09	8.11	6.56
1867-73.....	15.54	12.52	8.72	15.55	5.06	10.12	.....	7.14	7.61	9.76
1874-80.....	10.15	8.12	5.90	7.86	4.23	4.39	1.87	2.91	.31	6.92
1881-87.....	7.23	5.54	4.46	5.99	4.31	2.09	.88	2.99	.48	5.48
1888-94.....	.48	.56	.34	1.48	.42	2.11	1.29	3.43	4.22	1.47
1862-94.....	7.30	5.72	4.84	8.28	3.83	2.92	.21	3.12	1.63	5.62
1876-78.....	10.16	7.17	5.25	9.83	3.76	3.40	.51	6.98	.69	6.37
1893-95.....	2.18	.91	.20	2.66	1.32	.37	.34	1.91	1.44	2.67
1862.....	6.20	4.36	1.60	7.11	2.06	1.84	2.99	.....	1.15	4.16
1872.....	16.85	13.90	10.24	18.04	5.32	16.56	.59	2.07	16.85	12.12
1895.....	4.67	3.67	2.34	4.67	1.67	1.67	.66	2.00	.33	4.08

YEARS.	VARIATIONS IN VALUES DUE TO CHANGES IN TRANSPORTATION CHARGES AND OTHER CAUSES.									
	Ohio.	Ind.	Ill.	Mich.	Wis.	Mo.	Minn.	Neb.	Kan.	Av'ge Ten States.
1862-66.....	7.89	7.74	5.46	13.12	3.37	8.88	.....	14.07	12.33	5.80
1867-70.....	16.60	13.84	10.02	15.09	6.03	11.79	6.86	.50	9.97	9.09
1871-74.....	13.80	12.78	10.40	14.51	6.86	12.60	7.67	5.36	10.27	9.03
1875-78.....	10.86	8.63	7.06	10.11	5.13	7.18	8.51	1.22	4.73	6.17
1879-82.....	8.39	7.96	5.93	5.74	6.33	6.54	9.00	4.68	2.35	5.26
1883-86.....	6.07	5.58	4.50	4.89	3.61	5.16	6.74	3.45	2.51	3.71
1887-90.....	4.34	3.87	3.82	4.50	2.86	3.22	7.51	4.78	3.43	3.04
1891-94.....	.....	.....	.....	.....	.....	.....	5.15	3.00	.18	.....
1862-66.....	7.89	7.74	5.46	13.12	3.37	8.88	.....	14.07	12.33	5.80
1867-73.....	15.90	13.75	10.29	14.96	5.97	13.08	.....	14.12	11.83	9.00
1874-80.....	10.51	9.35	7.47	7.27	5.14	7.35	8.85	4.07	4.53	6.16
1881-87.....	7.59	6.77	6.03	5.40	5.22	5.05	7.86	3.99	3.74	4.72
1888-94.....	.84	.67	1.23	.89	1.33	.85	5.69	3.55	.....	.71
1862-94.....	7.66	6.95	6.41	7.69	4.74	5.88	7.19	3.86	2.59	4.86
1876-78.....	10.52	8.40	6.82	9.24	4.67	6.36	7.49	.....	3.53	5.61
1893-95.....	2.54	2.14	1.77	2.07	2.23	2.59	6.64	5.07	2.78	1.91
1862.....	6.56	5.59	3.17	6.52	2.97	4.80	3.99	.....	5.37	3.40
1872.....	17.21	15.13	11.81	17.45	6.23	19.52	6.39	4.91	21.07	11.36
1895.....	5.03	4.90	3.91	4.08	2.58	4.63	6.32	4.98	3.89	3.32



TABLE IV. (c).

An exhibit by years and by certain periods of years from 1862 to 1895, inclusive, of the acres sown to wheat in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of wheat in said states in bushels and tons and its total farm or home value in dollars, currency and gold, and its average home or farm values per bushel and ton in gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton, in Dollars.	Average Value Per Bushel, in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Currency.	Gold.
1862.....	8,787,369	138,339,476	4,150,184	116,467,746	80,246,277	19.33	34.2	58.0
1863.....	10,127,398	133,653,154	4,009,595	139,444,710	89,662,948	22.36	104.3	67.0
1864.....	10,053,210	123,128,416	3,693,852	204,910,042	94,873,349	25.68	166.4	77.0
1865.....	9,299,010	113,010,667	3,390,320	144,311,468	103,038,388	30.39	127.7	91.1
1866.....	9,861,953	102,739,059	3,082,172	204,607,365	152,923,272	49.32	189.1	147.9
1867.....	11,238,290	133,122,000	3,993,660	260,518,810	188,094,581	47.09	195.7	141.3
1868.....	11,253,871	143,907,000	4,317,210	179,292,460	132,138,543	30.60	124.6	91.8
1869.....	11,740,496	164,800,000	4,944,000	127,130,000	104,755,120	21.19	77.1	63.6
1870.....	11,597,799	149,646,000	4,489,380	140,094,700	126,505,514	28.18	93.6	84.5
1871.....	11,754,384	145,386,000	4,361,580	168,440,660	154,460,085	35.41	115.9	106.2
1872.....	12,310,770	156,228,000	4,686,840	179,079,330	158,843,366	33.89	114.6	101.6
1873.....	13,939,539	190,849,000	5,725,470	196,062,060	175,894,578	30.72	102.7	92.2
1874.....	15,746,124	198,928,000	5,967,840	168,758,890	150,026,653	25.14	84.8	75.4
1875.....	16,417,894	188,410,000	5,652,300	171,389,100	151,850,743	26.84	91.0	80.5
1876.....	16,816,634	166,840,000	5,005,200	160,730,700	151,247,589	30.21	96.3	90.6
1877.....	15,427,547	238,664,346	7,159,930	241,232,854	237,614,361	33.18	101.1	99.5
1878.....	19,671,400	267,474,460	8,024,234	183,227,779	183,227,779	22.83	68.5	68.5
1879.....	20,081,400	297,145,470	8,914,364	312,406,406	.....	35.05	.....	105.1
1880.....	25,171,788	346,722,302	10,401,669	319,112,444	.....	30.68	.....	92.0
1881.....	25,102,800	244,250,000	7,327,500	286,217,540	.....	39.07	.....	117.2
1882.....	22,787,000	332,283,400	9,968,502	278,622,774	.....	27.95	.....	88.8
1883.....	21,618,100	260,541,400	7,816,242	224,466,794	.....	28.72	.....	86.2
1884.....	23,194,860	320,552,000	9,616,560	190,519,350	.....	19.81	.....	59.4
1885.....	18,881,344	211,778,000	6,353,340	160,067,940	.....	25.20	.....	75.6
1886.....	20,608,387	278,778,000	8,363,340	182,584,570	.....	21.83	.....	65.5
1887.....	20,824,945	260,391,000	7,811,730	172,776,290	.....	22.12	.....	66.3
1888.....	20,450,111	230,064,000	6,901,920	211,685,470	.....	30.67	.....	92.0
1889.....	19,898,069	291,590,000	8,747,700	195,771,924	.....	26.38	.....	67.1
1890.....	19,229,070	227,985,000	6,839,550	191,066,939	.....	27.94	.....	83.8
1891.....	21,682,896	358,208,000	10,746,240	294,857,723	.....	27.44	.....	82.3
1892.....	21,144,103	298,747,000	8,962,410	179,264,690	.....	20.00	.....	60.0
1893.....	18,106,391	205,259,847	6,157,796	105,822,329	.....	17.11	.....	51.3
1894.....	18,294,952	270,913,071	8,127,392	127,840,250	.....	15.73	.....	47.2
1895.....	17,373,416	230,870,295	6,926,109	115,338,162	.....	16.65	.....	50.0
1862-66.....	48,128,940	610,870,772	18,326,123	809,741,331	519,844,234	28.35	132.5	85.1
1867-70.....	45,830,456	591,475,000	17,744,250	707,035,970	551,493,758	31.08	119.5	93.2
1871-74.....	53,750,817	691,391,000	20,741,730	712,370,940	639,224,682	30.81	103.0	92.4
1875-78.....	68,333,475	861,388,806	25,841,664	756,580,433	723,940,472	28.01	87.8	84.0
1879-82.....	93,142,988	1,220,401,172	36,612,035	1,196,359,164	.....	32.68	.....	98.0
1883-86.....	84,303,141	1,071,649,400	32,149,482	757,638,654	.....	23.57	.....	70.7
1887-90.....	80,402,225	1,010,030,000	30,300,900	771,300,623	.....	25.45	.....	76.4
1891-94.....	79,228,342	1,133,127,918	33,993,838	707,284,992	.....	20.81	.....	62.4
1862-66.....	48,128,940	610,870,772	18,326,123	809,741,331	519,844,234	28.35	132.5	85.1
1867-73.....	83,835,140	1,083,938,000	32,518,140	1,250,648,020	1,040,691,787	32.00	115.4	96.0
1874-80.....	129,332,787	1,704,184,578	51,125,537	1,556,858,173	1,505,485,975	29.44	91.2	88.3
1881-87.....	153,017,886	1,908,573,800	57,257,214	1,495,255,258	.....	26.11	.....	78.3
1888-94.....	138,805,622	1,882,766,918	56,483,008	1,305,809,323	.....	23.12	.....	69.4
1862-94.....	553,120,384	7,190,334,068	215,710,022	6,418,312,107	5,867,086,579	27.19	89.2	81.6
1867-94.....	504,991,444	6,579,463,296	197,383,899	5,608,570,776	5,347,242,345	27.09	85.2	81.3
1867-78.....	167,914,748	2,144,254,806	64,327,644	2,175,987,343	1,914,658,912	29.76	101.5	89.3
1879-86.....	177,446,129	2,292,050,572	68,761,517	1,953,997,818	.....	28.42	.....	85.3
1887-94.....	159,630,567	2,143,157,918	64,204,738	1,478,585,615	.....	23.00	.....	69.0
1867-78.....	167,914,748	2,144,254,806	64,327,644	2,175,987,343	1,914,658,912	29.76	101.5	89.3
1879-82.....	93,142,988	1,220,401,172	36,612,035	1,196,359,164	.....	32.68	.....	98.0
1883-94.....	243,933,708	3,214,807,318	96,444,220	2,236,224,269	.....	23.19	.....	69.5
1867-80.....	213,167,936	2,788,122,578	83,643,677	2,807,506,193	2,546,177,762	30.44	100.6	91.3
1881-94.....	291,823,508	3,791,340,718	113,740,222	2,801,064,583	.....	24.76	.....	74.2
1876-78.....	51,915,581	672,978,806	20,189,364	585,191,333	572,089,729	28.33	86.9	85.0
1893-95.....	53,774,759	707,043,213	21,211,297	348,500,741	.....	16.43	.....	49.3

TABLE IV. (d).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the wheat raised in Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations, explained in the table.

Years.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates, Per Ton. (3)	Corresponding to Column			Average of Index Numbers for Ten States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
1862-66 .....	\$28.35	\$27.64	.820	21.84	84	79	92	83	78
1867-70 .....	31.08	30.60	.921	21.60	92	87	91	85	89
1871-74 .....	30.81	31.01	.930	21.98	91	88	93	89	90
1875-78 .....	28.01	28.17	.845	22.00	83	80	93	80	80
1879-82 .....	32.68	32.62	.979	27.36	96	93	115	96	92
1883-86 .....	23.57	24.01	.720	20.30	70	68	85	70	68
1887-90 .....	25.45	25.61	.768	22.57	75	73	95	76	73
1891-94 .....	20.81	21.17	.635	21.17	61	60	89	65	57
1862-66 .....	28.35	27.64	.820	21.84	84	79	92	83	78
1867-73 .....	32.00	32.21	.966	23.21	94	92	98	91	93
1874-80 .....	29.44	29.27	.878	23.11	87	83	97	84	84
1881-87 .....	26.11	26.40	.792	21.68	77	75	91	77	75
1888-94 .....	23.12	23.49	.705	22.78	68	67	96	71	64
1862-94 .....	27.19	27.19	.817	22.38	80	78	94	79	84
1876-78 .....	28.33	28.45	.854	22.84	84	81	96	81	86
1893-95 .....	16.43	16.22	.487	14.31	49	46	60	49	46
1862 .....	19.33	.....	.....	.....	57	.....	.....	51	52
1872 .....	33.89	35.12	1.054	23.76	100	100	100	100	100
1895 .....	16.65	17.28	.518	13.96	49	49	59	50	49

(a) Computed by Sauerbeck's method.

TABLE IV. (e).

An exhibit by states for various years and periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the wheat raised in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas and California; together with the total home or farm value of the same in currency and its average home or farm value per bushel and ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period of years was of the average gold value in the same states for the year 1872:

## NEW YORK.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent-ages.	Index Nos.	
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862 .....	13,021,650	390,650	16,277,062	.861	41.67	28.71	59	
1863 .....	13,021,650	390,650	18,100,094	.894	46.33	29.79	61	
1864 .....	10,918,615	327,558	25,622,350	1.086	78.22	36.22	74	
1865 .....	12,556,406	376,692	26,180,096	1.488	69.49	49.62	102	
1866 .....	12,556,406	376,692	33,525,604	1.984	89.00	66.13	136	
1867 .....	8,250,000	247,500	21,780,000	1.906	88.00	63.54	130	
1868 .....	8,497,000	254,910	17,673,760	1.533	69.33	51.10	109	
1869 .....	9,750,000	292,500	13,357,500	1.129	45.67	37.63	77	
1870 .....	9,133,000	273,990	12,877,530	1.273	47.00	42.44	87	
1871 .....	9,589,000	287,670	14,479,390	1.385	50.34	46.16	95	
1872 .....	6,712,000	201,360	11,074,800	1.464	55.00	48.79	100	
1873 .....	7,047,000	211,410	11,275,200	1.435	53.33	47.84	98	
1874 .....	9,161,000	274,830	11,542,860	1.120	42.00	37.34	77	
1875 .....	5,200,000	156,000	6,812,000	1.161	43.67	38.69	79	
1876 .....	9,750,000	292,500	12,772,500	1.232	43.67	41.09	84	
1877 .....	12,800,000	384,000	15,616,000	1.201	40.67	40.06	82	
1878 .....	14,128,400	423,852	14,410,968	1.020	.....	34.00	70	
1879 .....	10,746,000	322,380	15,044,400	1.400	.....	46.67	96	
1880 .....	12,609,200	378,276	14,752,764	1.170	.....	39.00	80	
1881 .....	10,844,000	323,320	14,856,280	1.370	.....	45.67	94	
1882 .....	12,145,200	364,356	13,359,720	1.100	.....	36.67	75	
1883 .....	8,035,200	241,056	8,919,072	1.110	.....	37.00	76	
1884 .....	12,729,000	381,870	10,819,650	.850	.....	28.33	58	
1885 .....	10,565,000	316,950	10,142,400	.960	.....	32.00	66	
1886 .....	11,093,000	332,790	9,318,120	.840	.....	28.00	57	
1887 .....	10,137,000	304,110	8,312,340	.820	.....	27.33	56	
1888 .....	9,309,000	279,270	10,239,900	1.100	.....	36.67	75	
1889 .....	8,929,600	267,870	8,035,864	.900	.....	30.00	61	
1890 .....	9,288,000	278,640	9,287,830	1.000	.....	33.33	68	
1891 .....	10,633,000	318,990	10,632,964	1.000	.....	33.33	68	
1892 .....	8,405,000	252,150	7,144,385	.885	.....	28.41	58	
1893 .....	6,846,059	205,382	5,203,005	.760	.....	25.33	52	
1894 .....	6,297,400	188,922	3,904,388	.620	.....	20.67	42	
1895 .....	7,301,069	219,032	4,694,727	.680	.....	22.67	46	
1862-66 ..	62,074,727	1,862,242	119,705,206	1.262	64.28	42.06	a-14.04	86
1867-70 ..	35,630,000	1,068,900	65,688,790	1.442	61.45	48.07	b-3.74	99
1871-74 ..	32,509,000	975,270	48,372,250	1.337	49.60	44.58	c-20.27	91
1875-78 ..	41,878,400	1,256,852	49,611,468	1.143	39.49	38.08	.....	78
1879-82 ..	46,344,400	1,390,332	58,013,164	1.252	.....	41.73	.....	86
1883-86 ..	42,422,200	1,272,666	39,199,242	.924	.....	30.80	.....	63
1887-90 ..	37,663,000	1,129,890	35,875,934	.953	.....	31.75	.....	65
1891-94 ..	32,181,459	965,444	26,884,742	.835	.....	27.85	.....	57
1862-66 ..	62,074,727	1,862,242	119,705,206	1.262	64.28	42.06	.....	86
1867-73 ..	58,978,000	1,769,340	102,518,180	1.434	57.88	47.81	.....	98
1874-80 ..	74,394,600	2,231,838	90,951,492	1.182	40.75	39.39	.....	87
1881-87 ..	75,548,400	2,266,452	75,727,582	1.002	.....	33.41	.....	68
1888-94 ..	59,707,459	1,791,224	54,448,336	.912	.....	30.40	.....	62
1862-94 ..	330,703,186	9,921,096	443,350,796	1.152	44.69	38.35	.....	79
1867-94 ..	268,628,459	8,058,854	323,645,590	1.205	40.16	37.56	.....	77
1876-78 ..	36,678,400	1,100,352	42,799,468	1.138	38.90	37.93	.....	78
1893-95 ..	20,444,528	613,336	14,072,120	.688	.....	22.93	.....	47
1862 .....	13,021,650	390,650	16,277,062	.860	41.67	28.71	.....	59
1872 .....	6,712,000	201,360	11,074,800	1.464	55.00	48.79	.....	100
1895 .....	17,301,069	219,032	4,964,727	.680	.....	22.66	.....	46



TABLE IV. (e).—Continued.

## PENNSYLVANIA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66 ..	66,040,085	1,981,203	123,463,599	1.196	62.32	39.88	a-24.02	81
1867-70 ..	63,915,000	1,917,450	109,600,050	1.338	57.16	44.53	b-9.11	90
1871-74 ..	63,126,000	1,893,780	90,870,120	1.291	47.98	43.06	c-23.43	87
1875-78 ..	74,235,000	2,227,050	89,217,150	1.148	40.06	38.27	.....	78
1879-82 ..	83,519,480	2,505,585	100,054,157	1.198	.....	39.93	.....	81
1883-86 ..	72,443,800	2,173,314	67,496,154	.931	.....	31.06	.....	63
1887-90 ..	65,253,000	1,957,590	61,296,883	.939	.....	31.31	.....	63
1891-94 ..	77,395,208	2,321,856	59,006,138	.762	.....	25.41	.....	51
1862-66 ..	66,040,085	1,981,203	123,463,599	1.193	62.32	39.88	.....	81
1867-73 ..	110,405,000	3,312,150	180,340,610	1.350	54.45	45.00	.....	91
1874-80 ..	135,292,780	4,058,783	162,897,152	1.161	40.13	38.69	.....	78
1881-87 ..	125,326,500	3,759,796	125,165,719	.998	.....	33.29	.....	67
1888-94 ..	128,863,208	3,865,896	109,137,171	.847	.....	28.23	.....	57
1862-94 ..	565,927,573	16,977,828	701,004,251	1.094	41.29	36.46	.....	74
1876-78 ..	60,035,000	1,801,050	69,609,150	1.130	38.65	37.68	.....	76
1893-95 ..	57,656,637	1,729,699	35,780,431	.621	.....	20.69	.....	42
1862 .....	15,654,255	469,628	19,098,191	.840	40.67	28.02	.....	57
1872 .....	11,603,000	348,090	19,377,010	1.481	55.67	49.38	.....	100
1895 .....	20,456,429	613,693	13,296,679	.650	.....	21.67	.....	44

## KENTUCKY.

1862-66 ..	8,733,715	262,011	17,128,013	1.206	65.37	40.19	a-10.74	105
1867-70 ..	16,807,000	504,210	23,138,990	1.074	45.89	35.79	b-9.13	94
1871-74 ..	28,092,000	842,760	33,188,430	1.060	39.38	35.32	c-11.25	93
1875-78 ..	28,257,400	847,722	27,405,404	.920	32.33	30.68	.....	80
1879-82 ..	44,121,732	1,323,652	44,945,481	1.018	.....	33.96	.....	89
1883-86 ..	39,201,600	1,176,048	31,569,120	.805	.....	26.84	.....	70
1887-90 ..	41,512,000	1,245,360	34,335,027	.827	.....	27.57	.....	72
1891-94 ..	46,406,424	1,392,193	31,194,113	.672	.....	22.41	.....	59
1862-66 ..	8,733,715	262,011	17,128,013	1.206	65.37	40.19	.....	105
1867-73 ..	36,374,000	1,091,220	47,802,420	1.091	43.81	36.36	.....	95
1874-80 ..	55,029,132	1,650,874	54,052,135	.950	32.74	31.66	.....	83
1881-87 ..	76,189,600	2,285,688	66,505,360	.873	.....	29.10	.....	76
1888-94 ..	76,805,424	2,304,163	57,416,650	.747	.....	24.92	.....	65
1862-94 ..	253,131,871	7,593,956	242,904,578	.894	31.99	29.81	.....	78
1876-78 ..	20,297,400	608,922	19,047,404	.915	31.28	30.50	.....	80
1893-95 ..	31,091,649	932,749	17,331,872	.557	.....	18.58	.....	49
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	7,854,000	235,620	10,131,630	1.144	43.00	38.14	.....	100
1895 .....	9,501,225	285,037	5,795,747	.610	.....	20.33	.....	53

TABLE IV. (e).—Continued.

## VIRGINIA.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Cur'ney.	Gold.		
1862-66 ..	4,331,364	129,941	12,344,387	2.117	95.00	70.58	a-8.49	153
1867-70 ..	28,974,000	869,220	46,139,180	1.242	53.08	41.40	b-13.82	90
1871-74 ..	24,261,000	727,830	33,915,670	1.254	46.60	41.80	c-19.33	91
1875-78 ..	31,093,240	932,797	34,447,483	1.058	36.93	35.27	.....	76
1879-82 ..	33,065,022	991,950	38,754,877	1.172	.....	39.07	.....	85
1883-86 ..	24,221,800	726,654	21,889,740	.903	.....	30.12	.....	65
1887-90 ..	22,422,000	672,660	20,326,916	.906	.....	30.22	.....	66
1891-94 ..	30,918,335	927,550	22,806,359	.737	.....	24.59	.....	53
1862-66 ..	4,331,364	129,941	12,344,387	2.177	95.00	70.58	.....	153
1867-73 ..	47,563,000	1,426,890	73,418,610	1.277	51.45	42.57	.....	92
1874-81 ..	54,353,862	1,630,615	61,499,066	1.087	37.72	36.22	.....	79
1881-87 ..	44,530,200	1,335,906	44,143,194	.991	.....	33.04	.....	72
1888-94 ..	48,508,335	1,455,250	39,219,355	.808	.....	26.95	.....	58
1862-94 ..	199,286,761	5,978,602	230,624,612	1.053	38.58	35.10	.....	76
1876-78 ..	24,393,240	731,797	26,340,483	1.053	35.99	35.09	.....	76
1893-95 ..	22,181,918	665,458	13,615,052	.614	.....	20.46	.....	46
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	6,432,000	192,960	10,033,920	1.384	52.00	46.12	.....	100
1895 .....	6,505,583	195,167	4,228,629	.650	.....	21.67	.....	47

## GEORGIA.

1862-66 ..	1,272,456	38,174	3,461,080	2.029	90.67	67.36	a-3.01	132
1867-70 ..	8,679,000	260,370	16,501,290	1.367	63.31	45.59	b-7.40	89
1871-74 ..	9,614,000	288,420	16,033,280	1.392	55.59	46.40	c-7.96	91
1875-78 ..	12,448,000	373,440	16,802,440	1.449	44.99	48.97	.....	96
1879-82 ..	13,418,374	402,551	17,611,577	1.313	.....	43.75	.....	86
1883-86 ..	10,211,900	306,357	11,221,420	1.099	.....	36.63	.....	72
1887-90 ..	8,226,000	246,780	8,384,045	1.019	.....	33.97	.....	66
1891-94 ..	7,157,237	214,717	6,678,694	.933	.....	31.10	.....	61
1862-66 ..	1,272,456	38,174	3,461,080	2.029	90.67	67.36	.....	132
1867-73 ..	15,682,000	470,460	28,539,740	1.501	60.66	50.02	.....	98
1874-80 ..	21,731,474	651,944	29,510,125	1.317	45.26	43.91	.....	86
1881-87 ..	19,479,800	584,394	22,516,042	1.156	.....	38.53	.....	75
1888-94 ..	12,861,237	385,837	12,666,839	.985	.....	32.83	.....	64
1862-94 ..	71,026,967	2,130,809	96,693,826	1.250	45.38	41.19	.....	81
1876-78 ..	9,398,000	281,940	12,227,440	1.269	43.37	42.29	.....	83
1893-95 ..	4,690,943	140,728	3,887,555	.829	.....	27.62	.....	54
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	3,109,000	93,270	5,378,570	1.535	57.67	51.15	.....	100
1895 .....	1,330,706	39,921	1,091,179	.820	.....	27.33	.....	53

TABLE IV. (e).—Continued.

## TEXAS.

Years.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66 ..	1,847,931	55,438	2,679,500	1.077	48.33	35.91	a-4.65	74
1867-70 ..	3,658,000	109,740	6,620,160	1.411	60.15	47.05	b-6.26	96
1871-74 ..	4,806,000	144,180	7,313,020	1.386	50.72	45.49	c-6.91	93
1875-78 ..	19,260,000	577,800	20,317,700	1.014	35.16	33.81	.....	69
1879-82 ..	13,975,012	419,250	15,895,764	1.137	.....	37.91	.....	78
1883-86 ..	21,362,000	640,860	18,877,370	.883	.....	20.46	.....	60
1887-90 ..	21,280,000	638,400	18,401,808	.865	.....	28.82	.....	59
1891-94 ..	23,336,336	700,090	16,055,878	.688	.....	22.93	.....	47
1862-66 ..	1,847,931	55,438	2,679,500	1.077	48.33	35.91	.....	74
1867-73 ..	6,990,000	209,700	11,943,280	1.418	56.95	47.27	.....	97
1874-80 ..	27,196,312	815,889	29,438,448	1.047	36.08	34.89	.....	72
1881-87 ..	34,324,700	1,029,741	32,002,286	.932	.....	31.08	.....	64
1888-94 ..	39,166,336	1,174,990	30,097,686	.768	.....	25.62	.....	53
1862-94 ..	109,525,279	3,285,758	106,161,200	.936	32.31	31.19	.....	64
1876-78 ..	16,750,000	502,500	17,130,000	.997	34.09	33.24	.....	68
1893-95 ..	13,507,976	405,239	7,725,431	.572	.....	19.06	.....	39
1862 .....	.....	.....	.....	.....	.....	.....	.....	.....
1872 .....	1,377,000	41,310	2,272,050	1.464	55.00	48.79	.....	100
1895 .....	2,081,640	62,449	1,373,882	.660	.....	22.00	.....	45

## CALIFORNIA.

1862-66 ..	8,805,411	264,162	9,069,573	1.030	.....	34.33	a-35.08	105
1867-70 ..	55,175,000	1,655,250	55,822,500	1.012	.....	33.78	b-33.18	103
1871-74 ..	92,241,000	2,767,230	108,524,850	1.176	.....	39.22	c-89.22	120
1875-78 ..	117,790,000	3,533,700	134,133,700	1.139	.....	37.96	.....	116
1879-82 ..	136,330,200	4,089,906	140,362,526	1.029	.....	34.32	.....	105
1883-86 ..	143,399,000	4,301,970	112,449,490	.784	.....	26.14	.....	80
1887-90 ..	131,782,000	3,953,460	99,479,432	.754	.....	25.16	.....	77
1891-94 ..	140,981,222	4,229,437	97,178,476	.689	.....	22.98	.....	70
1862-66 ..	8,805,411	264,162	9,069,573	1.030	.....	34.33	.....	105
1867-73 ..	119,036,000	3,571,080	136,251,150	1.144	.....	38.15	.....	116
1874-80 ..	215,047,600	6,451,428	237,802,396	1.106	.....	36.86	.....	112
1881-87 ..	241,280,600	7,238,418	199,756,980	.828	.....	27.60	.....	84
1888-94 ..	242,334,222	7,270,027	174,140,448	.719	.....	23.95	.....	73
1862-94 ..	826,503,833	24,795,115	757,020,547	.916	.....	30.53	.....	93
1876-78 ..	93,990,000	2,819,700	106,049,700	1.128	.....	37.61	.....	115
1893-95 ..	105,327,020	3,159,811	59,845,235	.568	.....	18.94	.....	58
1862 .....	8,805,411	264,162	9,069,573	1.030	.....	34.33	.....	105
1872 .....	25,600,000	768,000	28,416,000	.985	37.00	32.82	.....	100
1895 .....	40,097,798	1,202,934	24,058,679	.600	.....	20.00	.....	61



TABLE IV. (f).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the differences between the average farm or home gold value of wheat in the states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, and the corresponding values in Iowa, together with an exhibit of the fluctuations in said states that have occurred in thirty-five years in those average values by reason of changes in transportation charges and from various local causes of price variation.

YEARS.	DIFFERENCES.							Average Seven States.
	N. Y.	Pa.	Va.	Ky.	Ga.	Texas.	Cal.	
1862-66.....	18.85	16.67	47.37	16.98	44.15	12.70	11.12	16.49
1867-70.....	25.10	21.56	18.43	12.82	22.62	24.08	10.81	15.42
1871-74.....	21.04	19.51	18.26	11.78	22.86	21.95	15.68	15.85
1875-78.....	14.66	14.85	11.85	7.26	25.45	10.39	14.54	11.97
1879-82.....	13.00	11.20	10.34	5.23	15.02	9.18	5.58	6.95
1883-86.....	9.14	9.40	8.46	5.18	14.97	7.80	4.48	5.39
1887-90.....	7.82	7.38	6.29	3.64	10.04	4.89	1.23	2.94
1891-94.....	5.32	2.88	2.06	.12	8.57	.40	.45	.22
1862-66.....	18.85	16.67	47.37	16.98	44.15	12.70	11.12	16.49
1867-73.....	23.64	20.83	18.40	12.19	25.85	23.10	13.98	16.13
1874-80.....	14.92	14.22	11.75	7.19	19.44	10.42	12.39	10.88
1881-87.....	10.41	10.29	10.04	6.10	15.53	8.08	4.60	6.44
1888-94.....	6.26	4.09	2.81	.78	8.69	1.48	.19	.64
1862-94.....	14.69	12.75	11.39	6.10	17.48	7.48	6.82	8.20
1876-78.....	13.72	13.47	10.88	6.29	18.08	9.03	13.40	10.61
1893-95.....	6.92	4.68	4.45	2.57	11.61	3.05	2.93	2.46
1862.....	12.86	12.17	.....	.....	.....	.....	18.48	9.84
1872.....	23.66	24.25	20.99	13.01	26.02	23.66	7.69	15.09
1895.....	7.33	6.34	6.34	5.00	12.00	6.67	4.67	4.13

YEARS.	VARIATIONS IN VALUES DUE TO CHANGES IN TRANSPORTATION CHARGES AND OTHER CAUSES.							Average Seven States.
	N. Y.	Pa.	Va.	Ky.	Ga.	Texas.	Cal.	
1862-66.....	13.53	13.79	45.31	17.10	35.58	12.30	11.31	16.27
1867-70.....	19.78	18.68	16.37	12.94	14.05	23.68	11.00	15.20
1871-74.....	15.72	16.63	16.20	11.90	14.29	21.55	15.87	15.63
1875-78.....	9.34	11.97	9.79	7.38	16.88	9.99	14.73	11.75
1879-82.....	7.68	8.32	8.28	5.35	6.45	8.78	5.78	6.73
1883-86.....	3.82	6.52	6.40	5.30	6.40	7.40	4.67	5.17
1887-90.....	2.50	4.50	4.23	3.76	1.47	4.49	1.42	2.72
1891-94.....	.....	.....	.....	.....	.....	.....	.64	.....
1862-66.....	13.53	13.79	45.31	17.10	35.58	12.30	11.31	16.27
1867-73.....	18.32	17.95	16.34	12.31	17.28	22.70	14.17	15.91
1874-80.....	9.60	11.34	9.69	7.31	10.87	10.02	12.58	10.66
1881-87.....	5.09	7.41	7.98	6.22	6.96	7.68	4.79	6.22
1888-94.....	.94	1.21	.75	.90	.12	1.08	.....	.42
1862-94.....	9.37	9.87	9.33	6.22	8.91	7.08	7.01	7.98
1876-78.....	8.40	10.59	8.82	6.41	9.51	8.63	13.59	10.39
1893-95.....	1.60	1.80	2.39	2.69	3.04	2.65	3.12	2.24
1862.....	7.54	9.29	.....	.....	.....	.....	18.67	9.62
1872.....	18.34	21.37	18.93	13.13	17.45	23.26	7.88	14.87
1895.....	2.01	3.46	4.28	5.12	3.43	6.27	4.86	3.91

TABLE IV. (g).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the wheat raised in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with its total farm or home value in dollars currency and its average home or farm value per ton and bushel in dollars, currency and gold.

Years.	TOTAL PRODUCT IN—		Total Value in Dollars. Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66. ....	153,105,689	4,593,271	287,851,358	1.245	62.67	41.51	102
1867-70. ....	212,838,000	6,385,140	323,510,960	1.239	50.67	41.45	101
1871-74. ....	254,649,000	7,639,470	338,217,620	1.231	44.27	41.06	100
1875-78. ....	324,962,040	9,748,861	371,935,345	1.113	38.15	37.11	91
1879-82. ....	370,774,220	11,123,226	415,637,546	1.121	.....	37.37	91
1883-86. ....	353,262,300	10,597,869	302,702,536	.858	.....	28.56	70
1887-90. ....	328,138,000	9,844,140	278,100,045	.847	.....	28.25	69
1891-94. ....	358,376,221	10,751,287	259,804,400	.724	.....	24.16	59
1872-66. ....	153,105,689	4,593,271	287,851,358	1.245	62.67	41.51	102
1867-73. ....	395,028,000	11,850,840	580,813,990	1.275	49.01	42.51	104
1874-80. ....	583,045,760	17,491,373	666,150,814	1.116	38.08	37.22	91
1881-87. ....	616,679,800	18,500,394	565,817,163	.917	.....	30.58	75
1888-94. ....	608,246,221	18,247,386	477,126,485	.784	.....	26.15	64
1862-94. ....	2,356,105,470	70,683,264	2,577,759,810	1.013	36.47	33.77	83
1867-94. ....	2,202,999,781	66,089,993	2,289,908,452	.996	34.63	33.23	81
1867-78. ....	792,449,040	23,773,471	1,033,663,925	1.185	43.48	39.49	97
1879-86. ....	724,036,520	21,721,095	718,340,082	.992	.....	33.07	89
1887-94. ....	686,514,221	20,595,427	537,904,445	.784	.....	26.12	64
1867-78. ....	792,449,040	23,773,471	1,033,663,925	1.185	43.48	39.49	97
1879-82. ....	370,774,220	11,123,226	415,637,546	1.121	.....	37.37	91
1883-84. ....	1,039,776,521	31,193,296	840,606,981	.808	.....	26.95	66
1867-80. ....	978,073,760	29,342,213	1,246,964,804	1.180	42.50	39.36	96
1881-94. ....	1,224,926,021	36,747,780	1,042,943,648	.851	.....	28.38	69
1876-78. ....	261,542,040	7,846,261	293,203,645	1.096	37.37	36.54	89
1893-95. ....	254,900,671	7,647,020	152,257,696	.596	.....	19.91	49
1862. ....	37,481,316	1,124,440	44,444,826	.817	39.53	27.23	67
1872. ....	62,687,000	1,880,610	86,684,010	1.226	46.09	40.88	51
1895. ....	87,274,450	2,618,233	54,800,522	.628	.....	20.93	100

TABLE IV. (h).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the wheat raised in New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations explained in the table.

Years.	AVERAGE VALUES OBTAINED BY —				INDEX NUMBERS.				
	Simple Division Per Ton (1)	Method for Correcting Averages Adopted in this Report (2).		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column —			Average of Index Numbers for Seven States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	41.51	41.51	1.245	25.24	102	102	98	105	87
1867-70....	41.45	40.20	1.206	25.00	101	99	97	94	94
1871-74....	41.06	41.20	1.236	25.57	100	102	100	95	98
1875-78....	37.11	37.18	1.115	25.43	91	92	99	85	88
1879-82....	37.37	37.52	1.126	30.79	91	93	120	86	90
1883-86....	28.56	28.86	.866	23.69	70	71	92	68	69
1887-90....	28.25	28.69	.861	25.97	69	71	101	67	69
1891-94....	24.16	24.56	.737	24.56	59	61	96	57	59
1862-66....	41.51	41.51	1.245	25.24	102	102	98	105	87
1867-73....	42.51	42.19	1.266	26.28	104	104	102	98	99
1874-80....	37.22	37.20	1.116	26.54	91	92	103	85	89
1881-87....	30.58	30.90	.927	24.68	75	76	96	72	74
1888-94....	26.15	26.59	.798	26.17	64	66	102	62	64
1862-94....	33.77	33.77	1.012	25.74	83	83	100	78	80
1876-78....	36.54	33.56	1.007	23.17	89	83	90	82	87
1893-95....	19.91	20.23	.607	17.99	49	50	70	48	49
1862.....	27.23	.....	.....	.....	67	.....	.....	77	66
1872.....	40.88	40.55	1.217	25.68	100	100	100	100	100
1895.....	20.93	21.28	.638	17.37	51	52	68	50	52

(a) Computed by Sauerneck's method.



TABLE IV. (i).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the wheat raised in the seventeen states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with its total farm or home currency value and its average home or farm value per ton and bushel in dollars, currency and gold.

Years.	TOTAL PRODUCT IN—		Total Value in Dollars.  Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel. Gold.	Per Ton.		
					Currency.	Gold.	
1862-66. ....	763,976,461	22,919,394	1,097,592,689	.930	47.89	31.00	86
1867-70. ....	804,313,000	24,129,390	1,030,546,930	1.013	42.71	33.78	94
1871-74. ....	946,040,000	28,381,200	1,050,588,560	1.007	37.02	33.57	94
1875-78. ....	1,186,350,846	35,590,525	1,128,515,778	.915	31.71	30.51	85
1879-82. ....	1,591,175,392	47,735,261	1,611,996,710	1.013	.....	33.77	94
1883-86. ....	1,424,911,700	42,747,351	1,060,341,190	.744	.....	24.81	69
1887-90. ....	1,338,168,000	40,145,040	1,049,400,668	.784	.....	26.14	73
1891-94. ....	1,493,504,139	44,745,125	967,089,392	.648	.....	21.61	60
1862-66. ....	763,976,461	22,919,394	1,097,592,689	.930	47.89	31.00	86
1867-73. ....	1,478,966,000	44,368,980	1,831,462,010	1.044	41.28	34.81	97
1874-80. ....	2,287,230,338	68,616,910	2,223,008,987	.943	32.40	31.43	88
1881-87. ....	2,525,253,600	75,757,608	2,061,072,421	.816	.....	27.21	76
1888-94. ....	2,491,013,139	74,730,394	1,782,935,810	.716	.....	23.86	66
1862-94. ....	9,546,439,538	286,393,286	8,996,071,917	.865	31.41	28.82	80
1867-94. ....	8,782,463,077	263,473,892	7,898,479,228	.859	29.98	28.63	80
1867-78. ....	2,936,703,846	88,101,115	3,209,651,268	.972	36.43	32.39	90
1879-86. ....	2,662,824,792	79,884,743	2,369,635,364	.890	.....	29.66	80
1887-94. ....	3,182,934,439	95,488,034	2,319,192,596	.729	.....	24.29	68
1867-78. ....	2,936,703,846	88,101,115	3,209,651,268	.972	36.43	32.39	96
1879-82. ....	1,591,175,392	47,735,261	1,611,996,710	1.013	.....	33.77	94
1883-94. ....	4,254,583,839	127,637,516	3,076,831,250	.723	.....	24.11	67
1867-80. ....	3,766,196,338	112,985,890	4,054,470,997	.983	35.88	32.75	90
1881-94. ....	5,016,266,739	150,488,002	3,844,008,231	.766	.....	25.54	70
1876-78. ....	934,520,846	28,035,625	878,394,978	.919	31.33	30.63	85
1893-95. ....	961,943,884	28,858,317	500,758,437	.521	.....	17.35	48
1862. ....	175,820,792	5,274,624	160,912,572	.631	30.70	21.02	59
1872. ....	218,915,000	6,567,450	265,763,340	1.077	40.47	35.90	100
1895. ....	318,144,745	9,544,342	170,147,684	.535	.....	17.83	50

TABLE IV. (j).

An exhibit for various years and periods of years from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the wheat raised in the seventeen states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations explained in the table.

Years.	AVERAGE VALUES OBTAINED BY —				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seventeen States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	31.00	31.06	.932	23.31	86	85	94	92	80
1867-70....	33.78	33.04	.991	23.08	94	91	93	89	91
1871-74....	33.57	33.53	1.006	23.51	94	92	95	92	92
1875-78....	30.51	30.39	.912	23.58	85	83	95	82	83
1879-82....	33.77	33.83	1.015	23.85	94	93	116	92	91
1883-86....	24.81	25.21	.756	21.78	69	69	88	69	69
1887-90....	26.14	26.37	.791	24.05	73	72	97	72	72
1891-94....	21.61	22.01	.669	22.01	60	60	89	61	58
1862-66....	31.00	31.06	.932	23.31	86	85	94	92	80
1867-73....	34.81	34.67	1.040	24.60	97	95	99	94	95
1874-80....	31.43	31.23	.931	24.00	88	86	99	85	85
1881-87....	27.21	27.51	.825	23.06	76	75	93	75	75
1888-94....	23.86	24.26	.728	24.26	66	67	98	67	64
1862-94....	28.82	28.82	.865	23.85	80	79	96	79	78
1876-78....	30.63	29.71	.891	23.56	85	81	95	81	86
1893-95....	17.35	17.21	.516	15.86	48	47	64	49	47
1862.....	21.02	.....	.....	.....	59	.....	.....	57	54
1872.....	35.90	36.46	1.093	24.87	100	100	100	100	100
1895.....	17.83	24.23	.727	21.40	50	66	86	50	50

(a) Computed by Sauerbeck's method.

TABLE IV. (k).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of wheat raised in the states of the American Union not included in the seventeen states given in Table (j), together with its total farm or home value in dollars currency, and its average home or farm values per ton and bushel in dollars, currency and gold.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66 .....	69,347,708	2,080,331	112,493,419	1.066	54.07	35.52	84
1867-70 .....	128,196,600	3,845,898	201,233,985	1.240	52.32	41.32	98
1871-74 .....	124,036,900	3,721,107	164,706,335	1.200	44.26	40.06	95
1875-78 .....	180,058,200	5,401,746	187,366,715	.992	34.69	33.00	78
1879-82 .....	243,626,666	7,308,801	261,707,834	1.074	.....	35.81	85
1883-86 .....	323,269,460	9,698,084	243,716,762	.754	.....	25.13	59
1887-90 .....	423,851,000	12,715,530	323,725,707	.764	.....	25.46	60
1891-94 .....	492,624,002	14,778,719	307,568,606	.624	.....	20.81	49
1862-66 .....	69,347,708	2,080,331	112,493,419	1.066	54.07	35.52	84
1867-73 .....	215,517,800	6,465,534	324,505,905	1.250	50.19	41.67	99
1874-80 .....	334,587,906	10,037,637	355,203,393	1.018	35.39	33.94	80
1881-87 .....	566,752,120	17,002,564	456,081,043	.805	.....	26.82	63
1888-94 .....	798,805,002	23,964,150	554,235,603	.694	.....	23.13	55
1862-94 .....	1,985,010,536	59,550,216	1,802,519,363	.854	30.27	28.48	67
1867-94 .....	1,915,662,828	57,469,885	1,690,025,944	.847	29.41	28.22	67
1867-78 .....	432,291,700	12,968,751	553,307,035	1.125	42.66	37.51	89
1879-86 .....	566,896,126	17,006,885	505,424,596	.892	.....	29.72	70
1887-94 .....	916,475,002	27,494,249	631,294,313	.689	.....	22.96	54
1867-78 .....	432,291,700	12,968,751	553,307,035	1.125	42.66	37.51	89
1879-82 .....	243,626,666	7,308,801	261,707,834	1.074	.....	35.81	85
1883-94 .....	1,239,744,462	37,192,333	875,011,075	.706	.....	23.53	56
1867-80 .....	550,105,706	16,503,171	679,709,298	1.109	41.19	36.97	88
1881-94 .....	1,365,557,122	40,966,714	1,010,316,646	.740	.....	24.66	58
1876-78 .....	139,752,200	4,192,566	142,906,525	1.011	34.09	33.69	80
1893-95 .....	361,558,204	10,846,745	176,253,967	.487	.....	16.25	36
1862 .....	10,946,680	328,280	5,761,759	.362	17.55	12.09	29
1872 .....	31,082,100	932,463	44,417,035	1.268	47.63	42.25	100
1895 .....	148,948,202	4,468,746	67,791,314	.455	.....	15.18	34



TABLE IV. (I).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of wheat raised in the states called in this report the Exterior States, including all the states in the American Union not given in the table of ten Mississippi Valley states, together with the total farm or home value in dollars currency, and its average home or farm value per ton and bushel in dollars, gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars, Gold.	Average Value Per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Currency.	Gold.
1862	2,328,461	48,428,006	1,452,720	50,206,565	37,412,960	25.75	103.7	77.3
1863	2,971,538	51,688,977	1,550,669	58,548,127	37,646,449	24.28	113.3	72.8
1864	3,104,879	37,567,407	1,127,023	89,405,077	41,394,551	36.73	238.0	110.2
1865	3,005,884	35,512,160	1,065,365	73,018,727	52,135,371	48.93	205.7	146.8
1866	5,562,543	40,260,847	1,477,825	129,166,281	95,970,547	64.94	262.4	194.8
1867	7,083,271	79,319,400	2,379,582	161,277,650	116,442,463	48.93	203.4	146.8
1868	7,206,261	80,129,600	2,403,888	139,902,830	108,797,076	45.26	174.7	135.8
1869	7,440,508	95,346,900	2,960,407	117,794,120	100,325,955	35.04	123.6	105.2
1870	7,394,792	86,238,700	2,587,161	105,770,345	97,023,094	37.50	122.7	112.5
1871	8,189,590	85,336,400	2,560,092	121,971,160	113,808,626	44.45	142.9	133.3
1872	8,547,589	93,769,100	2,813,073	131,101,045	119,497,635	42.48	139.8	127.4
1873	8,232,137	90,405,700	2,712,171	127,502,745	117,293,646	43.24	141.0	129.7
1874	9,220,908	109,174,700	3,275,241	122,349,005	111,886,943	34.16	112.1	102.5
1875	9,963,618	103,726,000	3,111,780	123,191,890	112,349,590	36.10	118.8	108.3
1876	10,810,387	123,116,500	3,693,495	139,528,600	133,314,212	36.09	113.3	108.3
1877	10,849,969	125,529,800	3,765,894	153,462,925	151,589,981	40.25	123.2	120.7
1878	12,437,160	152,647,940	4,579,438	143,118,645	.....	31.25	93.7	93.7
1879	12,464,550	151,611,160	4,548,335	184,613,736	.....	40.59	.....	121.8
1880	12,814,929	151,827,566	4,554,827	155,089,406	.....	34.05	.....	102.1
1881	12,606,220	139,630,090	4,170,993	170,662,887	.....	40.91	.....	122.7
1882	14,280,194	171,902,070	5,157,062	166,979,351	.....	32.38	.....	97.1
1883	14,837,493	160,544,760	4,816,343	159,182,488	.....	33.05	.....	99.2
1884	16,281,025	192,213,000	5,766,390	140,342,910	.....	24.34	.....	73.0
1885	15,307,902	145,334,000	4,360,020	115,252,450	.....	26.43	.....	79.3
1886	16,197,347	178,440,000	5,353,200	131,641,450	.....	24.59	.....	73.8
1887	16,816,838	195,938,000	5,878,140	137,836,670	.....	23.45	.....	70.3
1888	16,886,027	185,804,000	5,574,120	173,562,560	.....	31.14	.....	93.4
1889	18,225,760	198,970,000	5,969,160	146,719,783	.....	24.58	.....	73.7
1890	16,858,084	171,277,000	5,138,310	143,706,739	.....	27.97	.....	83.9
1891	18,234,001	253,572,000	7,607,160	218,614,988	.....	28.74	.....	86.2
1892	17,410,327	217,202,000	6,516,060	142,847,191	.....	21.92	.....	65.8
1893	16,523,027	190,871,878	5,726,156	107,849,032	.....	18.83	.....	56.5
1894	16,587,484	189,354,345	5,680,630	98,061,775	.....	17.26	.....	51.8
1895	16,673,916	236,232,652	7,086,979	122,600,836	.....	17.30	.....	51.9
1862-66	16,973,305	222,457,397	6,673,602	400,344,777	264,559,875	39.64	179.9	118.8
1867-70	29,124,832	341,034,600	10,231,038	524,744,945	422,598,588	41.30	153.9	123.9
1871-74	34,190,138	378,685,900	11,360,577	502,923,955	462,486,850	40.71	132.8	122.1
1875-78	44,061,164	505,020,240	15,150,607	559,302,060	540,372,428	35.66	110.7	107.0
1879-82	52,165,893	614,370,886	18,431,127	677,345,380	.....	36.75	.....	110.2
1883-86	62,623,767	676,531,760	20,295,953	546,419,298	.....	26.92	.....	80.8
1887-90	68,786,709	751,989,000	22,559,670	601,825,752	.....	26.68	.....	80.0
1891-94	68,754,839	851,000,223	25,530,006	567,373,006	.....	22.22	.....	56.7
1862-66	16,973,305	222,457,397	6,673,602	400,344,777	264,559,875	39.64	179.9	118.8
1867-70	54,094,567	610,545,800	18,316,374	905,319,895	773,198,495	42.21	148.3	126.6
1874-80	73,561,046	917,633,666	27,528,118	1,021,354,207	991,962,513	36.03	111.3	108.1
1881-87	106,327,019	1,183,401,920	35,502,958	1,021,898,206	.....	28.78	.....	86.3
1888-94	120,724,710	1,407,051,223	42,211,536	1,031,362,088	.....	24.43	.....	73.3
1862-94	376,680,647	4,341,090,006	130,232,580	4,380,279,173	4,082,981,177	31.35	100.9	94.05
1867-94	359,707,342	4,118,632,609	123,558,978	3,979,934,396	3,818,421,302	30.90	96.6	92.71
1867-78	107,376,134	1,224,740,740	36,742,222	1,586,970,960	1,425,457,866	38.79	129.6	.....
1879-86	114,789,660	1,290,902,646	38,727,080	1,223,764,678	.....	31.60	.....	94.8
1887-94	137,541,548	1,602,989,223	48,089,676	1,169,198,758	.....	24.31	.....	72.9
1867-78	107,376,134	1,224,740,740	36,742,222	1,586,970,960	1,425,457,866	38.79	129.6	.....
1879-82	52,165,893	614,370,886	18,431,127	677,345,380	.....	36.75	.....	.....
1883-94	200,165,315	2,279,520,983	68,385,629	1,715,618,056	.....	25.09	.....	75.3
1867-80	132,655,613	1,528,179,466	45,844,484	1,926,674,102	1,765,161,008	38.50	126.1	115.5
1881-94	227,051,729	2,590,453,143	77,714,494	2,053,260,294	.....	26.42	.....	79.3
1876-78	34,097,546	401,294,240	12,038,827	436,110,170	.....	35.55	108.7	106.6
1893-95	49,784,427	616,458,875	18,493,765	328,511,663	.....	17.77	.....	53.3

TABLE IV. (m).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the acres sown to wheat in the United States, and the total product of the same in bushels and tons, its total home or farm value in dollars, currency, the average yield per acre in bushels, and its average home or farm value per bushel and ton in dollars, gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Bushels	AVERAGE.		
		Bushels.	Tons.			Value per Bu. in Cents.		Value per Ton in Dollars, Gold.
						Currency	Gold.	
1862....	11,115,830	186,763,482	5,602,904	166,674,311	16.8	89.2	62.9	20.99
1863....	13,098,936	185,342,131	5,560,264	197,992,837	14.1	116.0	68.7	22.89
1864....	13,158,089	160,695,823	4,820,875	294,315,119	12.2	183.1	84.8	28.26
1865....	12,304,894	148,522,827	4,453,685	217,330,195	12.0	146.3	104.5	34.82
1866....	15,424,496	151,999,906	4,559,997	333,773,646	9.8	219.5	163.1	54.39
1867....	18,321,561	212,441,400	6,373,242	421,796,460	11.5	198.5	143.3	47.78
1868....	18,460,132	224,036,606	6,721,098	319,195,290	12.1	142.5	107.5	35.85
1869....	19,181,004	260,146,900	7,804,407	244,924,120	13.5	94.1	78.8	26.28
1870....	18,992,591	235,884,700	7,076,541	245,865,045	12.4	104.2	94.7	31.58
1871....	19,943,893	230,722,400	6,921,672	290,411,820	11.5	125.8	116.3	38.76
1872....	20,858,359	249,997,100	7,499,913	310,180,375	11.9	124.0	111.3	37.11
1873....	22,171,676	281,254,700	8,437,641	323,594,805	12.7	115.0	104.2	34.74
1874....	24,967,027	308,102,700	9,243,081	291,107,895	13.3	94.5	85.0	28.33
1875....	26,381,512	292,136,000	8,764,080	294,580,990	11.0	100.8	90.4	30.14
1876....	27,627,021	289,956,500	8,698,695	300,259,200	10.4	103.6	98.1	32.71
1877....	26,277,546	364,194,146	10,925,824	394,695,779	13.9	108.4	106.8	35.62
1878....	32,108,560	420,122,400	12,603,672	326,346,424	13.1	77.7	77.6	25.89
1879....	32,545,950	448,756,630	13,462,699	497,020,142	13.8	110.8	110.8	36.92
1880....	37,986,717	498,549,868	14,956,496	474,201,850	13.1	.....	95.1	31.71
1881....	37,709,020	383,280,090	11,498,403	456,880,427	10.1	.....	119.3	39.75
1882....	37,067,194	504,185,470	15,125,564	445,602,125	13.6	.....	88.4	29.46
1883....	36,455,593	421,086,160	12,632,585	383,649,282	11.6	.....	91.1	30.37
1884....	39,475,885	512,765,000	15,382,950	330,862,260	13.0	.....	64.8	21.58
1885....	34,189,246	357,112,000	10,713,360	275,320,390	10.4	.....	77.1	25.69
1886....	36,806,184	457,218,000	13,716,540	314,226,020	12.4	.....	68.7	22.91
1887....	37,641,783	456,320,000	13,689,870	310,612,990	12.1	.....	68.1	22.69
1888....	37,336,138	415,868,000	12,476,040	385,248,030	11.1	.....	92.6	30.88
1889....	38,123,859	490,560,000	14,716,800	342,491,707	12.9	.....	69.8	23.27
1890....	36,087,154	399,262,000	11,977,860	354,773,678	11.1	.....	83.8	27.95
1891....	39,916,897	611,780,000	18,353,400	513,472,711	15.3	.....	83.9	27.98
1892....	38,554,430	515,949,000	15,478,470	322,111,881	13.4	.....	62.4	20.81
1893....	34,629,418	396,131,725	11,883,952	213,171,381	11.4	.....	53.8	17.94
1894....	34,882,436	460,267,418	13,808,022	225,902,025	13.2	.....	49.1	16.86
1895....	34,047,332	467,102,947	14,013,088	237,938,998	13.7	.....	50.9	16.91
1862-66..	65,102,245	833,324,169	24,999,725	1,210,086,108	12.6	145.2	94.1	31.88
1867-70..	74,955,288	932,509,609	27,975,288	1,231,780,915	12.4	132.1	104.4	34.82
1871-74..	87,940,955	1,070,076,900	32,102,307	1,215,294,895	12.2	113.6	102.9	34.32
1875-78..	112,394,639	1,366,409,046	40,992,271	1,315,882,493	12.1	96.3	92.5	30.84
1879-82..	145,308,881	1,834,772,058	55,043,162	1,873,704,544	12.6	.....	102.1	34.04
1883-86..	146,926,908	1,748,181,160	52,445,435	1,304,057,952	11.8	.....	74.6	24.88
1887-90..	149,188,934	1,762,019,000	52,860,570	1,373,126,375	11.8	.....	77.9	25.99
1891-94..	147,983,181	1,984,128,141	59,523,844	1,274,657,998	13.4	.....	64.2	21.41
1862-66..	65,102,245	833,324,169	24,999,725	1,210,086,108	12.6	145.2	94.1	31.88
1867-73..	137,929,216	1,694,483,800	50,834,514	2,155,967,915	12.3	130.2	107.0	35.68
1874-80..	207,894,333	2,621,818,244	78,654,547	2,578,212,380	12.6	98.3	95.2	31.75
1881-87..	259,344,905	3,091,975,720	92,750,272	2,517,153,464	11.9	.....	81.4	27.13
1888-94..	259,530,332	3,289,818,141	98,694,544	2,337,171,413	12.7	.....	71.1	23.69
1862-94..	929,801,031	11,531,420,074	345,942,602	10,798,591,280	12.3	93.7	86.3	28.76
1867-94..	864,698,788	10,698,055,905	320,942,877	9,588,505,172	12.4	89.5	85.7	28.55
1867-78..	275,290,882	3,368,995,546	101,069,863	3,762,958,303	12.2	111.3	99.1	33.04
1879-86..	292,235,291	3,582,953,218	107,488,597	3,177,762,496	12.3	.....	88.7	29.56
1887-94..	297,172,115	3,746,147,141	112,384,414	2,647,784,373	12.6	.....	70.7	23.55
1867-78..	275,290,882	3,368,995,546	101,069,863	3,762,958,303	12.2	111.3	99.1	33.04
1879-82..	145,308,881	1,834,772,058	55,043,162	1,873,704,544	12.6	.....	102.1	34.04
1883-94..	444,099,023	5,494,328,301	164,829,849	3,951,842,325	12.4	.....	71.9	23.97
1867-80..	345,823,549	4,316,302,044	129,489,061	4,734,180,295	12.5	109.7	99.8	33.28
1881-94..	518,875,239	6,381,793,861	191,453,816	4,854,324,877	12.3	.....	76.0	25.35
1876-78..	86,013,127	1,074,273,046	32,228,191	1,021,301,503	12.5	95.1	93.1	31.03
1893-95..	103,559,186	1,323,502,088	39,705,062	677,012,404	12.8	.....	51.1	17.05



TABLE IV. (n).

An exhibit for the years 1862 to 1895, inclusive, of the average value per bushel and ton in gold of the wheat raised in ten Mississippi Valley states and in the other states of the Union (in tables designated as Exterior States) not included in the group of ten and in the nation, together with the weight in tons and the value in dollars gold of the annual per capita product of wheat in the United States.

Years.	INDEX NUMBERS.			AVERAGE VALUE PER BUSHEL, GOLD—CENTS.			AVERAGE VALUE PER TON, GOLD—DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862	57	61	57	.580	.773	.629	19.33	25.75	20.99	.....	.....
1863	66	57	62	.670	.728	.687	22.36	24.28	22.89	.....	.....
1864	76	86	76	.770	1.102	.848	25.68	36.73	28.26	.....	.....
1865	90	115	94	.911	1.468	1.045	30.39	48.93	34.82	.....	.....
1866	146	153	147	1.479	1.948	1.631	49.32	64.94	54.39	.....	.....
1867	139	115	129	1.413	1.468	1.433	47.09	48.93	47.78	.176	8.41
1868	90	107	97	.918	1.358	1.075	30.60	45.26	35.85	.182	6.51
1869	63	83	71	.636	1.052	.788	21.19	35.04	26.28	.207	5.43
1870	83	82	85	.845	1.125	.947	28.18	37.50	31.58	.183	5.79
1871	103	103	104	1.062	1.333	1.163	35.41	44.45	38.76	.175	6.78
1872	100	100	100	1.016	1.274	1.113	33.89	42.48	37.11	.185	6.85
1873	91	102	94	.922	1.297	1.042	30.72	43.24	34.74	.203	7.05
1874	75	80	76	.754	1.025	.850	25.14	34.16	28.33	.216	6.12
1875	79	85	81	.805	1.083	.904	26.84	36.10	30.14	.200	6.01
1876	89	85	88	.906	1.083	.981	30.21	36.09	32.71	.193	6.30
1877	91	95	96	.995	1.207	1.068	33.18	40.25	35.62	.236	8.39
1878	67	74	70	.685	.937	.776	22.83	31.25	25.89	.264	6.83
1879	103	96	100	1.051	1.218	1.108	35.05	40.59	36.92	.275	10.17
1880	106	80	85	.920	1.021	.951	30.68	34.05	31.71	.298	9.45
1881	115	96	107	1.172	1.227	1.193	39.07	40.91	39.75	.224	8.90
1882	82	76	79	.888	.971	.884	27.95	32.38	29.46	.288	8.48
1883	85	78	82	.862	.992	.911	28.72	33.05	30.37	.235	7.14
1884	58	57	58	.594	.730	.648	19.81	24.34	21.58	.280	6.03
1885	74	62	69	.756	.793	.771	25.20	26.43	25.69	.191	4.90
1886	64	58	62	.655	.738	.687	21.83	24.59	22.91	.239	5.47
1887	65	55	61	.663	.703	.681	22.12	23.45	22.69	.233	5.29
1888	91	73	83	.920	.934	.926	30.67	31.14	30.88	.208	6.42
1889	66	58	63	.671	.737	.698	22.38	24.58	23.27	.240	5.58
1890	82	66	75	.838	.839	.838	27.94	27.97	27.95	.191	5.34
1891	81	68	75	.823	.862	.839	27.44	28.74	27.98	.286	8.02
1892	59	52	56	.600	.658	.624	20.00	21.92	20.81	.236	4.91
1893	50	44	48	.513	.565	.538	17.11	18.83	17.94	.178	3.19
1894	46	41	44	.472	.518	.491	15.73	17.26	16.36	.202	3.31
1895	49	41	46	.500	.519	.509	16.65	17.30	16.91	.201	3.41
1862-66	84	93	85	.851	1.188	.941	28.35	39.64	31.38	.....	.....
1867-70	92	97	94	.932	1.239	1.044	31.08	41.30	34.82	.187	6.51
1871-74	91	96	92	.924	1.221	1.029	30.81	40.71	34.32	.195	6.69
1875-78	83	84	83	.840	1.070	.925	28.01	35.66	30.84	.224	6.90
1879-82	96	86	92	.980	1.102	1.021	32.68	36.75	34.04	.271	9.23
1883-86	70	63	67	.707	.808	.746	23.57	26.92	24.88	.236	5.87
1887-90	75	63	70	.764	.800	.779	25.45	26.68	25.99	.216	5.66
1891-94	61	52	58	.624	.667	.642	20.81	22.22	21.41	.225	4.82
1862-66	84	93	85	.851	1.188	.941	28.35	39.64	31.38	.....	.....
1867-73	94	99	96	.960	1.266	1.070	32.00	42.21	35.68	.187	6.63
1874-80	87	85	86	.883	1.081	.952	29.44	36.03	31.75	.242	7.68
1881-87	77	68	73	.783	.863	.814	26.11	28.78	27.13	.241	6.54
1888-94	68	58	64	.694	.733	.710	23.12	24.43	23.69	.220	5.21
1862-94	80	74	78	.816	.941	.863	27.19	31.35	28.76	.....	.....
1867-94	80	73	77	.813	.927	.857	27.09	30.90	28.55	.225	6.41
1867-78	88	91	89	.893	1.164	.991	29.76	38.79	33.04	.203	6.71
1879-86	84	74	80	.853	.948	.887	28.42	31.60	29.56	.253	7.47
1887-94	68	57	64	.690	.729	.707	23.00	24.31	23.55	.222	5.22
1867-78	88	91	89	.893	1.164	.991	29.76	38.79	33.04	.203	6.71
1879-82	96	86	92	.980	1.102	1.021	32.68	36.75	34.04	.271	9.23
1883-94	68	59	65	.695	.753	.719	23.19	25.09	23.97	.226	5.42
1867-80	90	91	90	.913	1.155	.998	30.44	38.50	33.28	.217	7.23
1881-94	73	62	68	.742	.793	.760	24.76	26.42	25.35	.229	5.81
1876-78	84	84	84	.850	1.066	.931	28.33	35.55	31.03	.231	7.18
1893-95	49	42	46	.493	.533	.511	16.42	17.77	17.05	.193	3.30



TABLE IV. (o).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the total product in bushels of the wheat raised in the four states of Minnesota, Iowa, Nebraska, and Kansas, together with the total home or farm value of the same in dollars currency and the average farm gold and currency value per bushel for the group and for the several states, and the corrected average values for the group, and the index numbers for those corrected values.\*

YEARS.	Total Product in Bushels.	Total Value in Dollars, Currency.	AVERAGE VALUE PER BUSHEL, IN CENTS.								Index Nos.
			Four States.			Iowa, Gold.	Minnesota, Gold.	Kansas, Gold.	Nebraska, Gold.		
			Currency	Gold	Corrected Average.						
1862-66 .....	84,585,105	90,000,213	106.5	68.8	688	69.6	68.0	94.0	90.9	93	
1867-70 .....	151,910,000	133,601,410	87.9	69.2	689	68.9	68.6	86.2	49.5	93	
1871-74 .....	223,824,000	181,438,420	81.1	72.7	708	70.0	72.7	88.8	65.8	95	
1875-78 .....	319,073,206	235,870,585	73.9	70.6	711	70.3	74.8	71.8	53.0	96	
1879-82 .....	398,653,768	343,117,128	.....	86.1	873	86.2	92.2	80.6	79.3	118	
1883-86 .....	454,474,400	279,868,988	.....	61.6	647	65.0	64.2	59.9	54.4	87	
1887-90 .....	385,019,000	272,634,185	.....	70.8	721	71.8	73.4	69.4	65.2	97	
1891-94 .....	454,776,783	269,613,498	.....	59.3	662	67.6	62.1	55.5	51.7	89	
1862-66 .....	84,585,105	90,000,213	106.5	68.8	688	69.6	71.7	94.0	90.9	93	
1867-73 .....	307,414,000	267,949,430	87.2	73.5	728	72.5	72.5	95.3	63.9	98	
1874-80 .....	590,032,274	456,173,653	77.3	74.7	746	73.4	79.2	74.3	64.7	101	
1881-87 .....	737,817,100	500,990,748	.....	67.9	705	69.0	76.6	67.6	60.0	95	
1888-94 .....	752,467,783	491,030,383	.....	65.3	714	72.4	68.5	59.8	62.1	96	
1862-94 .....	2,472,316,262	1,806,234,427	73.1	69.4	716	71.6	72.2	66.2	61.8	97	
1876-78 .....	245,973,206	178,095,585	72.4	70.6	702	70.0	71.5	68.0	49.9	95	
1893-95 .....	280,889,306	128,065,252	.....	45.6	477	48.0	47.0	43.7	42.3	64	
1862-65 .....	62,313,478	58,385,865	93.7	56.9	567	58.2	48.7	79.4	90.5	76	
1868-71 .....	164,799,000	126,902,730	77.0	65.2	667	66.4	66.8	85.0	64.8	90	
1862 .....	13,671,487	9,062,830	66.3	45.7	444	47.5	34.0	51.0	.....	60	
1865 .....	17,481,876	17,030,010	97.4	69.6	693	71.4	57.1	122.1	102.8	93	
1869 .....	46,300,000	26,152,000	56.5	46.5	443	42.8	48.6	65.1	42.0	60	
1872 .....	49,995,000	43,080,900	86.2	76.4	742	75.4	73.6	12.6	69.2	100	
1895 .....	116,945,533	51,366,841	.....	43.9	455	46.0	44.0	45.0	40.0	61	

\* This table includes an estimate for the crop of 1866, not reported by the department of agriculture and not included in other tables.

TABLE IV. (p).

An exhibit by years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels of the wheat grown in the six Western States raising winter wheat, Ohio, Indiana, Illinois, Michigan, Missouri, and Kansas, together with the total home or farm gold and currency values of the same and its average farm gold value in gold and currency per bushel for the group and for the several states, and the corrected average values for the group, and the index numbers for these corrected values.

Years.	Total Product in Bushels.	Total Value in Dollars, Currency.	AVERAGE VALUE PER BUSHEL IN CENTS.										Index Nos.
			Six States.			Ohio, Gold.	Indiana, Gold.	Illinois, Gold.	Missouri, Gold.	Kansas.	Michigan.		
			Currency.	Gold.	Corrected Average.								
1862-66..	437,012,137	617,355,384	141.3	90.2	90.2	92.2	89.2	81.3	87.4	94.0	110.8	76	
1867-70..	358,350,000	485,679,990	135.5	105.6	116.5	117.6	106.7	124.3	95.4	86.2	115.9	98	
1871-74..	400,700,000	465,134,650	116.1	104.2	105.4	110.9	105.3	97.1	99.5	88.8	115.9	88	
1875-78..	527,992,200	499,292,390	94.6	90.7	94.0	101.8	92.5	86.7	82.9	71.8	102.4	79	
1879-82..	832,977,049	845,139,027	.....	101.5	104.3	110.3	106.4	99.3	96.9	80.6	105.2	87	
1883-86..	634,691,200	478,959,042	.....	75.5	79.3	88.1	78.0	73.8	71.6	59.9	81.4	66	
1887-90..	650,734,000	511,845,277	.....	78.7	80.7	83.7	79.7	78.5	72.6	69.4	84.1	68	
1891-94..	822,727,706	513,984,229	.....	62.5	64.9	66.5	63.9	62.9	58.7	55.5	69.4	54	
1862-66..	437,012,137	617,355,384	141.3	90.2	90.2	92.2	89.2	81.3	87.4	94.0	110.8	76	
1867-73..	637,423,000	836,505,830	131.2	108.9	109.6	119.1	110.0	98.7	102.9	95.3	119.2	92	
1874-80..	1,002,052,949	1,064,199,153	97.4	94.5	96.3	103.8	97.5	91.1	86.6	74.3	97.0	81	
1881-87..	1,192,841,500	991,339,056	.....	83.1	85.7	90.7	85.6	82.4	78.3	67.6	87.0	72	
1888-94..	1,305,854,706	907,990,546	.....	69.5	72.8	73.9	71.7	71.4	66.1	59.8	76.9	61	
1862-94..	4,665,184,292	4,417,389,969	91.7	86.1	89.5	93.0	88.3	85.7	79.9	66.2	96.0	75	
1876-78..	425,182,200	397,561,290	93.5	91.2	91.8	99.4	90.8	85.2	79.9	68.0	98.4	77	
1893-95..	480,993,823	242,203,994	.....	50.4	51.7	54.6	50.8	48.6	46.9	43.7	56.0	43	
1862-65..	370,592,160	469,349,105	126.6	82.7	82.7	84.9	81.2	71.5	77.3	83.8	105.3	69	
1868-71..	362,733,000	419,520,780	115.7	97.6	101.9	104.9	97.8	101.5	91.0	99.6	106.0	85	
1862.....	104,104,440	91,357,259	87.8	60.5	58.6	62.4	55.7	52.8	53.1	51.0	68.9	49	
1865.....	75,412,390	105,484,815	139.9	29.9	99.0	114.2	96.7	77.8	116.9	126.4	117.8	83	
1879.....	97,300,000	86,870,000	89.3	73.6	79.4	107.1	76.6	62.6	65.9	70.9	79.9	67	
1872.....	86,081,000	116,082,320	134.9	119.6	119.3	126.0	117.1	109.1	125.1	126.0	131.3	100	
1895.....	128,228,120	69,890,855	.....	54.5	56.6	60.0	57.0	53.0	51.0	45.0	60.0	47	

TABLE IV. (q).

• An exhibit by years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels of wheat grown in the four Western States raising spring wheat, Iowa, Minnesota, Wisconsin, and Nebraska, together with the total home or farm value of the same in dollars currency, and its average home value in dollars, gold and currency, per bushel for the group and for the several states, and the corrected average values for the group, and the index numbers for the same.

Years.	Total Product in Bushels.	Total Value in Dollars, Currency.	AVERAGE VALUE PER BUSHEL IN CENTS.							Index Nos.	
			Four States.				Iowa, Gold.	Wisconsin, Gold.	Minnesota, Gold.		Nebraska, Gold.
			Currency.	Gold.	Corrected Average.						
1862-66 .....	173,858,635	192,385,947	110.7	72.4	72.4	69.6	77.0	48.7	90.9	97	
1867-70 .....	233,125,000	221,355,980	95.0	74.3	77.4	68.9	84.3	68.6	49.5	104	
1871-74 .....	290,691,000	247,236,290	85.1	76.3	80.6	70.6	88.5	72.7	65.8	108	
1875-78 .....	333,396,606	257,288,043	77.2	73.5	77.5	70.3	82.9	74.9	53.0	104	
1879-82 .....	387,424,123	351,220,137	.....	90.7	95.7	86.2	102.5	92.3	79.3	128	
1883-86 .....	436,958,200	278,679,612	.....	63.8	69.4	65.0	73.1	64.3	54.4	93	
1887-90 .....	359,296,000	259,455,366	.....	72.2	75.1	71.8	77.6	73.4	65.2	101	
1891-94 .....	310,400,210	193,300,763	.....	62.3	65.8	67.6	64.9	62.1	51.7	88	
1862-66 .....	173,858,635	192,385,947	110.7	72.4	72.4	69.6	77.0	48.7	90.9	97	
1867-73 .....	446,515,000	414,142,190	92.7	77.6	80.9	72.5	87.7	72.5	63.9	108	
1874-80 .....	612,131,629	492,659,020	80.5	77.6	80.8	73.4	86.1	79.0	64.7	108	
1881-87 .....	715,732,300	503,916,202	.....	70.4	76.2	69.0	81.9	71.6	60.0	102	
1888-94 .....	576,912,210	397,818,779	.....	69.0	72.8	72.4	73.7	68.6	62.1	97	
1862-94 .....	2,525,149,774	2,000,922,138	79.2	73.1	78.7	71.6	82.6	72.2	61.8	105	
1876-78 .....	247,796,606	187,630,043	75.7	73.8	76.1	70.0	80.9	71.5	49.9	102	
1893-95 .....	226,049,387	106,296,747	.....	47.0	50.1	48.0	52.0	47.0	42.3	67	
1862-65 .....	137,539,553	135,784,861	98.7	60.9	61.1	58.2	64.4	48.7	90.5	82	
1868-71 .....	241,006,000	195,437,040	81.1	68.5	72.1	66.4	76.6	66.8	64.8	97	
1862 .....	34,235,036	25,110,487	73.3	50.5	50.2	47.5	53.7	38.6	.....	67	
1865 .....	37,598,277	38,826,653	103.3	71.2	74.1	71.4	77.8	57.1	106.4	99	
1869 .....	67,500,000	40,260,000	59.6	49.1	50.5	42.8	56.0	48.6	42.0	67	
1872 .....	70,147,000	62,997,010	89.8	79.7	74.7	66.9	81.1	65.3	61.4	100	
1895 .....	102,642,175	45,447,307	.....	44.3	48.6	46.0	51.0	44.0	40.0	65	

TABLE IV. (r).

A comparative exhibit showing the excess of average gold values per bushel in certain states over those in others, exhibiting the relative fluctuations in those states due to the introduction of the new process of milling in 1873.

Years.	WINTER WHEAT STATES.				WINTER AND SPRING WHEAT STATES.					
	Missouri over Kansas.	Ohio over Indiana.	Ohio over Missouri.	Michigan over Kansas.	Kansas over Nebraska.	Michigan over Wisconsin.	Missouri over Iowa.	Ohio over Minnesota.	Kansas over Minnesota.	Six over Four.
1862-66	-6.6	3.0	4.8	16.8	3.1	33.8	17.8	43.5	45.3	17.8
1867-70	9.2	10.9	22.2	29.7	36.7	31.6	26.5	49.0	17.6	31.3
1871-74	10.7	5.6	11.4	27.1	23.0	27.4	28.9	38.2	16.1	27.9
1875-78	11.1	9.3	18.9	30.6	18.8	19.5	12.6	26.9	-3.1	17.2
1879-82	16.3	3.9	13.4	24.6	1.3	2.7	10.7	18.0	-11.7	10.8
1883-86	11.7	10.1	16.5	21.5	5.5	8.3	6.6	13.8	-4.4	11.7
1887-90	3.2	4.0	11.1	14.7	4.2	6.5	.8	10.3	-4.0	6.5
1891-94	3.2	2.6	7.8	13.9	3.8	4.5	-8.9	4.4	-6.6	.2



TABLE IV. (s).

A comparison of the prices of No. 2 Spring Wheat and No. 2 Red Winter Wheat at Chicago, Ill., from 1860 to 1891 (compiled from reports of the Chicago Board of Trade).

Year and Month.	Price of No. 2, Spring.	Price of No. 2, Red Winter.	Excess in Price of Red Winter.	Year and Month	Price of No. 2, Spring.	Price of No. 2, Red Winter.	Excess in Price of Red Winter.
1860.				1871.			
Jan.....	.91½@.95	.....@.....	.....@.....	Jan.....	1.05¾@1.11½	.....@.....	.....@.....
Feb.....	.97 .98	.....	.....	Feb.....	1.21½ 1.32	.....	.....
March.....	1.04 1.07	.....	.....	March.....	1.22¾ 1.26½	.....	.....
April.....	.96 .98	.....	.....	April.....	1.24½ 1.29	.....	.....
May.....	1.10 1.14	.....	.....	May.....	1.27 1.30	.....	.....
June.....	1.03½ 1.07½	.....	.....	June.....	1.25½ 1.27	.....	.....
July.....	1.05 1.06	.....	.....	July.....	1.23½ 1.29	1.25 1.25½	-½ -¾
Aug.....	.93 .94	.98 .99	5 5	Aug.....	.99½ 1.07	1.05 1.21	5½ 14
Sept.....	.84 .88	.....	.....	Sept.....	1.06 1.32	1.09 1.20	8 -12
Oct.....	.85 .87	.....	.....	Oct.....	1.17 1.24	1.23 1.30½	6 6¼
Nov.....	.80½ .81	.87 .88	6½ 7	Nov.....	1.18 1.21	1.25 1.27	7 6
Dec.....	.67 .68	.75	8 7	Dec.....	1.17½ 1.19¾	1.24 1.25	6¾ 5¼
1861.				1872.			
Jan.....	.76½ .76½	.....	.....	Jan.....	1.20½ 1.25	.....	.....
Feb.....	.74½ .75	.....	.....	Feb.....	1.23½ 1.24½	1.37	13½ 12½
March.....	.75 .75½	.....	.....	March.....	1.23½ 1.23½	.....	.....
April.....	.79 .81	.....	.....	April.....	1.19½ 1.23	.....	.....
May.....	.88 .91	.....	.....	May.....	1.34½ 1.42½	.....	.....
June.....	.73 .73½	.....	.....	June.....	1.43 1.53½	.....	.....
July.....	.55 .56	.....	.....	July.....	1.20 1.27½	.....	.....
Aug.....	.68 .68½	.75½ .76	7½ 7½	Aug.....	1.28½ 1.37½	1.75	46½ 37½
Sept.....	.61 .62	.68	7 6	Sept.....	1.18½ 1.24	1.30	11½ 6
Oct.....	.74 .75	.....	.....	Oct.....	1.11½ 1.21	.....	.....
Nov.....	.67½ .68½	.74	6½ 6½	Nov.....	1.07½ 1.09½	.....	.....
Dec.....	.63 .63½	.71	8 8½	Dec.....	1.08½ 1.11½	1.50	1.52 41½ 40½
1862.				1879.			
Jan.....	.65 .65½	.71 .72	6 6½	Jan.....	.85½ .83	.86	.86½ 49½ 31½
Feb.....	.68½ .69½	.75	6½ 5½	Feb.....	.85½ .86½	.86	.89½ 5½ 31½
March.....	.73 .74	.81	8 7	March.....	.92½ .94½	.95	.98 2¼ 38½
April.....	.72½ .73	.79 .80	6½ 6	April.....	.88½ .93½	1.01	1.04 12½ 10½
May.....	.75 .76	.85	10 9	May.....	.89½ .93	.99	.99½ 9½ 6½
June.....	.70 .71½	.82	12 10½	June.....	1.01 1.03½	1.02	1.06 1 2½
July.....	.72 .73	.82	10 7	July.....	.98 1.10	1.00	1.02 2 -8
Aug.....	.87½ .89	.95	7½ 6	Aug.....	.86½ .92	.96	.97½ 9¾ 5½
Sept.....	.79½ .80½	.92	11½ 11½	Sept.....	.85 .87½	.92	.94½ 7 7
Oct.....	.80 .82½	.93 .94	13 11½	Oct.....	1.03½ 1.07½	1.09	1.12½ 6¼ 58½
Nov.....	.78 .79	.92	14 13	Nov.....	1.12 1.16½	1.17	1.24½ 5 8¼
Dec.....	.80 .82	.98	16½ 18	Dec.....	1.22 1.26	1.25	1.27½ 3 1½
1863.				1880.			
Jan.....	.88 .90	1.04 1.05	16 15	Jan.....	1.30 1.33	1.30	1.31½ -5½
Feb.....	1.06 1.09	1.25	19 16	Feb.....	1.18½ 1.21½	1.21½	1.27 3¼ 58½
March.....	1.10 1.12	1.27	17 15	March.....	1.22½ 1.25½	1.24½	1.25 2 -7½
April.....	1.05 1.06½	1.21	16 14½	April.....	1.10 1.15½	1.12	1.16 2 3½
May.....	.94 .99	.....	.....	May.....	1.12 1.14	.....	1.08½ 3½ -5½
June.....	.94 .97	.....	.....	June.....	1.00½ 1.14	1.03	1.06 2½ -8
July.....	.91 .96	1.10	16 14	July.....	.86½ .89	.89	.95 2¼ 6
Aug.....	.88 .90	.93 1.02½	8 12½	Aug.....	.88 .92	.91½	.97 3½ 5
Sept.....	.90 .93	.95	5 2	Sept.....	.86½ .88½	.88	.96 1½ 7½
Oct.....	1.00 1.01	1.05½ 1.06	5½ 5	Oct.....	.90½ .94½	.92½	.98 2½ 38½
Nov.....	1.03 1.05	1.17	14 12	Nov.....	1.01½ 1.03½	1.01½	1.03½ 4½ 14
Dec.....	1.06 1.06½	1.14	8 7½	Dec.....	1.05½ 1.07½	1.03	1.07½ -2½ -25½
1864.				1881.			
Jan.....	1.11 1.11½	.....	.....	Jan.....	.95½ .98½	.94	.97½ -1½ -3½
Feb.....	1.11 1.11½	.....	.....	Feb.....	.96½ .99½	.96½	.99½ 3½ -1½
March.....	1.08 1.10½	1.20	12 9½	March.....	.98½ .99½	.98	1.01½ 1 1½
April.....	1.10½ 1.10½	.....	.....	April.....	1.00½ 1.03½	.99½	1.03 1½ -3½
May.....	1.16 1.17½	.....	.....	May.....	1.01½ 1.04½	1.08	1.09 6½ 4½
June.....	1.25½ 1.26	.....	.....	June.....	1.06½ 1.11½	1.06	1.11 -8 -8½
July.....	1.88 1.94	2.15	27 24½	July.....	1.10½ 1.13½	1.12	1.21 -1½ 7½
Aug.....	1.88 1.92	2.16½ 2.16½	27 24½	Aug.....	1.19 1.23½	1.14	1.23 -5 -1½
Sept.....	1.94 2.02	2.05 2.06	11 4	Sept.....	1.22 1.38	.....	1.31 9 -7
Oct.....	1.41 1.50	.....	.....	Oct.....	1.34½ 1.40½	1.42	1.43 -7½ 2¾
Nov.....	1.80 1.81	1.95	15 14	Nov.....	1.25½ 1.31½	.....	.....
Dec.....	1.50 1.50	1.65	15 15	Dec.....	1.23½ 1.28½	.....	.....

TABLE IV. (s)—Continued.

Year and Month.	Price of No. 2, Spring.	Price of No. 2, Red Winter.	Excess in Price of Red Winter.	Year and Month.	Price of No. 2, Spring.	Price of No. 2, Red Winter.	Excess in Price of Red Winter.
1882.				1887.			
Jan.....	1.25 $\frac{1}{2}$ @1.27 $\frac{1}{2}$	@.....	@.....	Jan.....	.78 @.80 $\frac{1}{2}$	.76 $\frac{3}{4}$ @.80 $\frac{1}{2}$	1 $\frac{1}{2}$ @-1 $\frac{1}{4}$
Feb.....	1.29 $\frac{1}{2}$ 1.32 $\frac{1}{2}$	.....	.....	Feb.....	.76 $\frac{1}{2}$ .78 $\frac{1}{2}$	.75 $\frac{1}{2}$ .76 $\frac{1}{2}$	1 $\frac{1}{4}$ 1 $\frac{1}{4}$
March.....	1.24 $\frac{1}{2}$ 1.27 $\frac{1}{2}$	.....	.....	March.....	.73 $\frac{1}{2}$ .75 $\frac{1}{2}$	.71 $\frac{1}{2}$ .73 $\frac{1}{2}$	51 $\frac{1}{4}$
April.....	1.34 $\frac{1}{2}$ 1.36	.....	.....	April.....	.77 $\frac{1}{2}$ .81 $\frac{1}{2}$	.75 $\frac{1}{2}$ .78 $\frac{1}{2}$	1 $\frac{1}{2}$ .....
May.....	1.2 $\frac{1}{2}$ 1.40	1 $\frac{1}{4}$ 1.40	.....	May.....	.80 $\frac{1}{2}$ .83 $\frac{1}{2}$	.80 $\frac{1}{2}$ .85 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{4}$
June.....	1.24 $\frac{1}{2}$ 1.27 $\frac{1}{2}$	.....	.....	June.....	.89 $\frac{1}{2}$ .89 $\frac{1}{2}$	.87 $\frac{1}{4}$ .89 $\frac{1}{2}$	-2 $\frac{1}{8}$ .....
July.....	1.321.35	1.301.40	5-2	July.....	.68 $\frac{1}{2}$ .69 $\frac{1}{2}$	.72 $\frac{1}{4}$ .73	3 $\frac{1}{4}$ 3 $\frac{1}{8}$
Aug.....	1.101.35	.981.05	12-30	Aug.....	.66 $\frac{1}{2}$ .69 $\frac{1}{2}$	.70.71 $\frac{1}{2}$	3 $\frac{1}{4}$ 2
Sept.....	.98 $\frac{1}{2}$ 1.03 $\frac{1}{2}$	1.00 $\frac{1}{2}$ 1.06	2 $\frac{1}{2}$ 2 $\frac{1}{2}$	Sept.....	.68 $\frac{1}{2}$ .69 $\frac{1}{2}$	.70 $\frac{1}{4}$ .71 $\frac{1}{2}$	2 $\frac{1}{2}$ 2
Oct.....	.95 $\frac{1}{2}$ .94 $\frac{1}{2}$	.95 $\frac{1}{2}$ 1.00	13 $\frac{1}{4}$ 2 $\frac{1}{4}$	Oct.....	.69 $\frac{1}{2}$ .71 $\frac{1}{2}$	.71 $\frac{1}{2}$ .73 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{8}$
Nov.....	.92 $\frac{1}{2}$ .93 $\frac{1}{2}$	.94 $\frac{1}{2}$ .96 $\frac{1}{4}$	2 $\frac{1}{4}$ 2 $\frac{1}{4}$	Nov.....	.71 $\frac{1}{2}$ .72 $\frac{1}{2}$	.72.73	1 $\frac{1}{2}$ 1 $\frac{1}{8}$
Dec.....	.93 $\frac{1}{2}$ .94 $\frac{1}{2}$	.94 $\frac{1}{2}$ .96 $\frac{1}{4}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$	Dec.....	.75 $\frac{1}{2}$ .78 $\frac{1}{2}$	.75.79 $\frac{1}{8}$	3 $\frac{1}{8}$ 5 $\frac{1}{8}$
1883.				1888.			
Jan.....	.93 $\frac{1}{2}$ .96	.95.98	1 $\frac{1}{2}$ 2	Jan.....	.77.77 $\frac{3}{4}$	.79 $\frac{1}{4}$ .....	.....
Feb.....	1.01 $\frac{1}{2}$ 1.06	1.03 $\frac{1}{4}$ 1.07 $\frac{1}{2}$	21 $\frac{1}{2}$	Feb.....	.....	.81 $\frac{1}{2}$ .....	2.....
March.....	1.06 $\frac{1}{2}$ 1.09 $\frac{1}{2}$	1.05 $\frac{1}{4}$ 1.10 $\frac{1}{2}$	31 $\frac{1}{4}$	March.....	.79.....	.81 $\frac{1}{2}$ .....	2.....
April.....	1.031.07 $\frac{1}{2}$	1.071.08	41 $\frac{1}{4}$	April.....	.72.75 $\frac{1}{2}$	.78.80 $\frac{1}{2}$	65 $\frac{1}{8}$
May.....	1.111.13 $\frac{1}{2}$	1.131.14 $\frac{1}{2}$	21 $\frac{1}{4}$	May.....	.81 $\frac{1}{4}$ .....	.86.....	4 $\frac{1}{4}$ .....
June.....	1.12 $\frac{1}{2}$ 1.13 $\frac{1}{2}$	1.151.16 $\frac{1}{2}$	2 $\frac{1}{4}$ 3	June.....	.84.....	.86.....	2.....
July.....	.981.00 $\frac{1}{2}$	1.061.07 $\frac{1}{2}$	8 $\frac{1}{4}$ 4	July.....	.81 $\frac{1}{4}$ .82	.8 $\frac{1}{2}$ .....	3 $\frac{1}{4}$ .....
Aug.....	1.001.01 $\frac{1}{2}$	1.031.07	65 $\frac{1}{4}$	Aug.....	.....	.86 $\frac{1}{2}$ .....	.....
Sept.....	.991.01 $\frac{1}{2}$	1.061.07 $\frac{1}{2}$	76 $\frac{1}{4}$	Sept.....	.93 $\frac{1}{4}$ .....	.92 $\frac{1}{4}$ .....	-1 $\frac{1}{4}$ .....
Oct.....	.94.94 $\frac{1}{2}$	1.01 $\frac{1}{2}$ 1.02 $\frac{1}{2}$	71 $\frac{1}{2}$ 6 $\frac{1}{4}$	Oct.....	1.161.17	1.161.17	.....
Nov.....	.92 $\frac{1}{2}$ .94 $\frac{1}{2}$	.991.01	6 $\frac{1}{4}$ 6 $\frac{1}{4}$	Nov.....	1.11 $\frac{1}{2}$ 1.13 $\frac{1}{2}$	1.11 $\frac{1}{2}$ 1.13 $\frac{1}{2}$	.....
Dec.....	.95 $\frac{1}{2}$ .98 $\frac{1}{2}$	.981.01	2 $\frac{1}{8}$ 3 $\frac{1}{4}$	Dec.....	1.02 $\frac{1}{2}$ 1.03 $\frac{1}{4}$	1.02 $\frac{1}{2}$ 1.03 $\frac{1}{4}$	.....
1884.				1889.			
Jan.....	.93 $\frac{1}{2}$ .95 $\frac{1}{2}$	.97.99 $\frac{1}{2}$	3 $\frac{1}{2}$ 4	Jan.....	.981.02	.981.02	.....
Feb.....	.91 $\frac{1}{2}$ .91 $\frac{1}{2}$	.971.00	1 $\frac{1}{4}$ 3 $\frac{1}{4}$	Feb.....	.93.96 $\frac{1}{2}$	.93.96 $\frac{1}{2}$	.....
March.....	.90 $\frac{1}{2}$ .93 $\frac{1}{4}$	.981.02	7 $\frac{1}{4}$ 8 $\frac{1}{4}$	March.....	1.03 $\frac{1}{4}$ 1.07 $\frac{1}{2}$	1.03 $\frac{1}{4}$ 1.07 $\frac{1}{2}$	.....
April.....	.78 $\frac{1}{2}$ .86 $\frac{1}{4}$	.....	17 $\frac{1}{4}$ 9 $\frac{1}{4}$	April.....	.89 $\frac{1}{2}$ 1.03 $\frac{1}{4}$	.89 $\frac{1}{2}$ 1.01 $\frac{1}{2}$	1 $\frac{1}{4}$ .....
May.....	.91.94 $\frac{1}{2}$	1.03 $\frac{1}{2}$ 1.05	12 $\frac{1}{2}$ 10 $\frac{1}{2}$	May.....	.79 $\frac{1}{2}$ .81	.79.82	-1 $\frac{1}{2}$ 1
June.....	.87 $\frac{1}{4}$ .89 $\frac{1}{2}$	1.08 $\frac{1}{4}$ .96	6 $\frac{1}{8}$ 6 $\frac{1}{8}$	June.....	.75 $\frac{1}{2}$ .76 $\frac{1}{2}$	.75 $\frac{1}{2}$ .78	1 $\frac{1}{2}$ .....
July.....	.82.85 $\frac{1}{2}$	.....	.....	July.....	.80.84 $\frac{1}{2}$	.82.84 $\frac{1}{2}$	2.....
Aug.....	.83.84 $\frac{1}{2}$	.88.90 $\frac{1}{2}$	56	Aug.....	.78.79 $\frac{1}{4}$	.77 $\frac{1}{4}$ .81	-3 $\frac{1}{4}$ 3 $\frac{1}{4}$
Sept.....	.77 $\frac{1}{2}$ .79 $\frac{1}{2}$	.81.82 $\frac{1}{2}$	31 $\frac{1}{2}$ 21 $\frac{1}{2}$	Sept.....	.76 $\frac{1}{2}$ .79 $\frac{1}{4}$	.76 $\frac{1}{2}$ .78 $\frac{1}{2}$	-1.....
Oct.....	.77 $\frac{1}{2}$ .79 $\frac{1}{2}$	.89.83	23 $\frac{1}{2}$ 3 $\frac{1}{2}$	Oct.....	.80 $\frac{1}{2}$ .82	.80 $\frac{1}{2}$ .82	.....
Nov.....	.73 $\frac{1}{2}$ .75 $\frac{1}{2}$	.74 $\frac{1}{2}$ .77	11 $\frac{1}{2}$ 1 $\frac{1}{2}$	Nov.....	.77 $\frac{1}{2}$ .80 $\frac{1}{2}$	.77 $\frac{1}{2}$ .79 $\frac{1}{2}$	3 $\frac{1}{8}$ .....
Dec.....	.72.73 $\frac{1}{2}$	.73 $\frac{1}{2}$ .74 $\frac{1}{2}$	11 $\frac{1}{2}$ 7 $\frac{1}{2}$	Dec.....	.77 $\frac{1}{2}$ .90	.78 $\frac{1}{2}$ .80	.....
1885.				1890.			
Jan.....	.72 $\frac{1}{2}$ .78 $\frac{1}{4}$	.73 $\frac{1}{2}$ .79 $\frac{1}{2}$	13 $\frac{1}{2}$ 11 $\frac{1}{2}$	Jan.....	.77 $\frac{1}{2}$ .79	.77 $\frac{1}{2}$ .78 $\frac{1}{2}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$
Feb.....	.76 $\frac{1}{2}$ .78 $\frac{1}{2}$	.79.81	2 $\frac{1}{2}$ 2 $\frac{1}{2}$	Feb.....	.74 $\frac{1}{2}$ .75 $\frac{1}{2}$	.74 $\frac{1}{2}$ .75 $\frac{1}{2}$	-1 $\frac{1}{2}$ .....
March.....	.73 $\frac{1}{2}$ .77 $\frac{1}{2}$	.76 $\frac{1}{2}$ .78	31 $\frac{1}{2}$ 1 $\frac{1}{2}$	March.....	.76 $\frac{1}{2}$ .78 $\frac{1}{2}$	.77 $\frac{1}{2}$ .78 $\frac{1}{2}$	1 $\frac{1}{2}$ .....
April.....	.74 $\frac{1}{2}$ .78 $\frac{1}{2}$	.78 $\frac{1}{2}$ .81 $\frac{1}{2}$	37 $\frac{1}{2}$ 27 $\frac{1}{2}$	April.....	.77 $\frac{1}{2}$ .79 $\frac{1}{2}$	.77 $\frac{1}{2}$ .79 $\frac{1}{2}$	.....
May.....	.88 $\frac{1}{2}$ .91 $\frac{1}{2}$	.97 $\frac{1}{2}$ 1.02 $\frac{1}{2}$	9 $\frac{1}{2}$ 11	May.....	.88 $\frac{1}{2}$ .94	.88 $\frac{1}{2}$ .94	.....
June.....	.84 $\frac{1}{2}$ .89	.93 $\frac{1}{2}$ .94 $\frac{1}{2}$	8 $\frac{1}{2}$ 5 $\frac{1}{2}$	June.....	.85 $\frac{1}{2}$ .93	.87 $\frac{1}{2}$ .93	.....
July.....	.86 $\frac{1}{2}$ .88	.92 $\frac{1}{2}$ .93	5 $\frac{1}{2}$ 5 $\frac{1}{2}$	July.....	.85.88	.85 $\frac{1}{2}$ .88	3 $\frac{1}{4}$ .....
Aug.....	.86 $\frac{1}{2}$ .88 $\frac{1}{2}$	.90.95	3 $\frac{1}{2}$ 6 $\frac{1}{2}$	Aug.....	.90.94 $\frac{1}{2}$	.91.94 $\frac{1}{2}$	1 $\frac{1}{4}$ .....
Sept.....	.76 $\frac{1}{2}$ .80	.81.86 $\frac{1}{2}$	4 $\frac{1}{2}$ 4 $\frac{1}{2}$	Sept.....	.97 $\frac{1}{2}$ 1.03 $\frac{1}{2}$	.901.03	21 $\frac{1}{4}$ -1 $\frac{1}{4}$
Oct.....	.84 $\frac{1}{2}$ .86 $\frac{1}{2}$	.89 $\frac{1}{2}$ .90 $\frac{1}{2}$	51 $\frac{1}{2}$ 41 $\frac{1}{2}$	Oct.....	.95 $\frac{1}{2}$ .97 $\frac{1}{2}$	.95 $\frac{1}{2}$ .97 $\frac{1}{2}$	.....
Nov.....	.85 $\frac{1}{2}$ .87 $\frac{1}{2}$	.89.90 $\frac{1}{2}$	37 $\frac{1}{2}$ 37 $\frac{1}{2}$	Nov.....	.98 $\frac{1}{2}$ 1.01 $\frac{1}{2}$	.98 $\frac{1}{2}$ 1.01	.....
Dec.....	.84 $\frac{1}{2}$ .88	.90.92	5 $\frac{1}{4}$ 4	Dec.....	.90 $\frac{1}{2}$ .92 $\frac{1}{2}$	.92.....	1 $\frac{1}{2}$ -1 $\frac{1}{2}$
1886.				1891.			
Jan.....	.84 $\frac{1}{2}$ .84	.....	.....	Jan.....	.90.....	.91.93 $\frac{1}{4}$	1-3 $\frac{1}{4}$
Feb.....	.78 $\frac{1}{2}$ .82	.....	.....	Feb.....	.95 $\frac{1}{2}$ .97 $\frac{1}{2}$	.97.98	1 $\frac{1}{8}$ 5 $\frac{1}{8}$
March.....	.79 $\frac{1}{2}$ .83	.....	.....	March.....	.....	.96.99 $\frac{1}{4}$	.....
April.....	.75 $\frac{1}{2}$ .79	.....	.....	April.....	1.01 $\frac{1}{2}$ 1.05 $\frac{1}{2}$	1.02 $\frac{1}{2}$ 1.05	11 $\frac{1}{2}$ -1 $\frac{1}{2}$
May.....	.77 $\frac{1}{2}$ .78	.....	.....	May.....	1.05 $\frac{1}{2}$ 1.11	1.061.14	3 $\frac{1}{2}$ -3
June.....	.73 $\frac{1}{2}$ .79	.72 $\frac{1}{2}$ .77 $\frac{1}{2}$	-3 $\frac{1}{2}$ .....	June.....	1.00 $\frac{1}{2}$ 1.04 $\frac{1}{2}$	1.011.04	1 $\frac{1}{2}$ 1 $\frac{1}{2}$
July.....	.73 $\frac{1}{2}$ .72 $\frac{1}{2}$	.....	.....	July.....	.92.96 $\frac{1}{2}$	.92.94	-1 $\frac{1}{2}$ .....
Aug.....	.75 $\frac{1}{2}$ .75 $\frac{1}{2}$	.77.....	22	Aug.....	.86 $\frac{1}{2}$ .88 $\frac{1}{2}$	.87 $\frac{1}{2}$ .90	5 $\frac{1}{8}$ 1 $\frac{1}{2}$
Sept.....	.75 $\frac{1}{2}$ .76 $\frac{1}{2}$	.77 $\frac{1}{2}$ .78 $\frac{1}{2}$	17 $\frac{1}{2}$ .....	Sept.....	.951.03 $\frac{1}{2}$	.971.00 $\frac{3}{4}$	2 $\frac{1}{2}$ 2 $\frac{1}{2}$
Oct.....	.72 $\frac{1}{2}$ .73 $\frac{1}{2}$	.73 $\frac{1}{2}$ .75	1 $\frac{1}{2}$ .....	Oct.....	.94.96 $\frac{1}{2}$	.94 $\frac{1}{2}$ .95 $\frac{1}{2}$	1 $\frac{1}{4}$ -6 $\frac{1}{4}$
Nov.....	.73 $\frac{1}{2}$ .73 $\frac{1}{2}$	.75 $\frac{1}{2}$ .74 $\frac{1}{2}$	1 $\frac{1}{2}$ 5 $\frac{1}{8}$	Nov.....	.93 $\frac{1}{2}$ .97	.94 $\frac{1}{2}$ .97	3 $\frac{1}{4}$ .....
Dec.....	.74 $\frac{1}{2}$ .78	.75.78 $\frac{1}{2}$	1 $\frac{1}{2}$ 6 $\frac{1}{8}$	Dec.....	.89 $\frac{1}{2}$ .92	.90.92 $\frac{1}{2}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$

TABLE IV. (t).

Prices of winter and spring wheat at Buffalo, N. Y., 1870-1891 (compiled from the market reports of the Buffalo Daily Courier).

Month and Day of Quotation.	Minnesota Spring.	Number One Spring.	Number Two Spring.	Red and Amber Winter.	White Winter.
1870.					
January 5.....	@ .....	\$1.14 @ .....	1.00 @ .....	\$1.20 @ .....	\$1.25 @ 1.40
February 1.....	.....	1.12 .....	1.02 .....	1.15 1.20	1.30 1.45
March 1.....	.....	1.12 .....	1.05 .....	1.15 1.20	1.30 1.40
April 2.....	.....	1.10 .....	1.00 1.03	1.18 .....	1.35 1.45
May 6.....	.....	1.07 .....	1.00 .....	1.18 1.20	1.35 1.45
June 17.....	.....	1.31½ .....	1.23½ 1.29	1.37 1.40	1.60 .....
July 8.....	.....	.....	1.15 .....	.....	1.60 .....
August 1.....	.....	.....	1.26 1.28	1.50 .....	1.72 .....
September 6.....	.....	1.12 .....	1.10 .....	1.18 .....	1.50 1.55
October 10.....	.....	1.19 1.20	1.17 1.18	1.20 1.27	1.40 1.50
November 3.....	.....	1.13 .....	1.05 .....	1.22 .....	.....
December 1.....	.....	.....	1.17½ .....	1.35 .....	1.35 .....
1871.					
January 7.....	.....	1.30 .....	1.25 .....	1.42 1.45	1.45 1.55
February 4.....	.....	.....	1.40 .....	1.50 .....	1.60 .....
March 11.....	.....	1.47 .....	1.43 1.45	1.46 1.50	1.56 1.62
April 1.....	.....	1.45 .....	1.40 .....	1.46 1.50	1.60 1.65
May 5.....	.....	.....	1.35 .....	1.42 1.50	1.60 1.65
June 3.....	.....	.....	1.38 1.39	1.52 .....	1.60 1.75
July 15.....	\$1.33 .....	.....	1.31 .....	1.39 1.40	1.50 1.60
August 19.....	.....	.....	1.19 .....	1.25 .....	.....
September 23.....	.....	.....	1.33 .....	1.40 .....	.....
October 7.....	.....	1.41 .....	1.39 1.40	.....	.....
November 18.....	1.43 .....	.....	1.38 1.40½	1.43 1.50	.....
December 16.....	1.36 1.37 .....	.....	1.33 1.35	1.50 1.52	1.60 1.62
1872.					
January 5.....	1.36 1.40 .....	.....	1.36 .....	1.52 .....	1.63 1.65
February 3.....	1.40 1.42 .....	.....	1.40 .....	1.50 1.55	1.65 .....
March 2.....	1.45 .....	.....	1.45 .....	.....	1.60 1.70
April 6.....	1.44 1.45 .....	.....	1.45 .....	.....	1.60 1.70
May 11.....	1.75 .....	.....	1.65 .....	1.90 1.95	2.05 2.15
June 8.....	1.60 .....	.....	1.57 .....	.....	2.02½ 2.10
July 6.....	.....	.....	1.34 1.35	.....	1.65 1.75
August 3.....	.....	.....	1.40 1.43	1.70 1.75	1.85 1.90
September 6.....	.....	.....	1.40 1.43	1.52½ .....	1.90 .....
October 5.....	1.45 1.50 .....	.....	1.40 1.42	1.55 1.60	1.80 1.86
November 2.....	1.40 1.47 .....	.....	1.35 1.38	1.53 1.54	1.65 1.80
December 7.....	.....	.....	1.35 1.40	1.50 1.62	1.70 1.85
1873.					
January 6.....	1.55 .....	.....	1.42 1.52	1.75 .....	1.50 1.95
February 1.....	1.64 .....	.....	1.50 1.57	1.80 .....	1.85 2.05
March 1.....	1.70 .....	.....	1.50 1.63	1.80 .....	1.80 2.05
April 5.....	1.68 .....	.....	1.45 1.56	1.75 1.80	1.75 2.00
May.....	.....	.....	.....	.....	.....
June 7.....	.....	1.47 .....	1.37 1.41	1.75 1.80	1.85 1.95
July 4.....	1.41 1.42 .....	1.41 1.42 .....	.....	1.54 1.68	1.70 1.82½
August 2.....	1.38 1.39 .....	1.38 1.39 .....	1.28 1.39	1.55 .....	1.70 1.85
September 6.....	.....	1.53 .....	1.39½ .....	1.40 1.55	1.70 1.85
October 4.....	1.37 .....	.....	1.26½ .....	.....	.....
November 8.....	1.28 .....	1.30 .....	1.17 1.22	1.40 1.50	1.60 1.70
December 6.....	.....	1.44 .....	1.35 1.37	1.55 .....	1.70 1.75
1874.					
January 3.....	.....	1.48 .....	1.36 1.42	1.55 .....	1.60 1.75
February 7.....	.....	1.54 .....	1.45 .....	1.60 1.62	1.70 1.75
March 7.....	.....	1.50 .....	1.40 .....	1.60 1.62	1.70 1.75
April 4.....	.....	1.52 1.55	1.40 1.44	1.51 1.55	1.60 1.73
May 2.....	.....	1.52 .....	1.45 .....	1.50 1.55	1.60 1.73
June 6.....	1.33 .....	1.37 .....	1.31 1.34	1.45 1.50	1.60 1.70
July 3.....	1.35 .....	1.32 1.34	1.30 .....	1.37 1.42	1.45 1.65
August 1.....	.....	1.30 .....	1.24 .....	1.22½ 1.25	1.30 1.40
September 5.....	.....	1.20 .....	1.03 1.13	1.15 .....	1.20 1.25
October 3.....	.....	1.15 .....	1.06 .....	1.14 1.19	1.20 1.30
November 7.....	.....	1.12 .....	.97 1.02	1.14 1.19	1.20 1.30
December 5.....	1.17 .....	1.14 1.16	1.04 1.07	1.12 1.19	1.25 1.30



TABLE IV. (t).—Continued.

Month and Day of Quotation.	Minnesota Spring.	Number One Spring.	Number Two Spring.	Red and Amber Winter.	White Winter.
1875.					
January 3.....	\$1.18 @ .....	\$1.16 @ .....	\$1.03 @ 1.07	\$1.12 @ 1.19	\$1.20 @ 1.25
February 13.....	1.15 1.16	1.13 1.14	1.00 1.05	1.12 1.19	1.20 1.25
March 6.....	1.15 .....	1.12 1.15	1.00 1.05	1.12 1.19	1.20 1.25
April 3.....	1.18 1.20	1.18 .....	1.08 1.12	1.15 1.20	1.20 1.30
May 1.....	1.17 .....	1.23 1.25	1.13 1.18	.....	1.32 1.35
June 12.....	1.12½ 1.13	1.12½ .....	1.04 1.08½	.....	1.28 1.30
July 10.....	1.17 .....	1.17 .....	1.10 1.15	1.80 .....	1.35 .....
August 14.....	1.45 .....	1.38 1.40	1.30 1.35	1.50 .....	1.56 1.65
September 4.....	.....	1.38 .....	1.25 1.31	1.42 1.45	1.45 1.60
October 2.....	1.35 .....	1.24 1.30	1.23 1.25	1.80 .....	1.32 1.40
November 6.....	1.30 .....	1.31 1.32	1.21 .....	1.80 1.85	1.35 1.40
December 18.....	1.30 .....	1.25 1.27	1.18 1.20	1.80 1.85	1.34 1.38
1876.					
January 3.....	\$1.37 @ .....	\$1.30 @ .....	..... @ .....	1.27 @ 1.33	1.34 @ 1.38
February 5.....	1.88 1.40	1.30 .....	.....	1.33 .....	1.80 1.40
March 4.....	1.37 .....	1.30 .....	.....	1.33 .....	1.30 1.39
April 1.....	1.38 1.39	.....	\$1.35 1.36	1.33 1.35	1.29 1.41
May 6.....	1.37 1.38	.....	1.35 .....	.....	1.28 1.38
June 3.....	1.35 .....	.....	.....	1.33 .....	1.32 1.44
July 1.....	1.25 1.27	.....	.....	1.25 1.28	1.25 1.28
August 5.....	1.17 .....	.....	.....	1.08 1.10	1.23 1.33
September 2.....	1.21 1.22	.....	.....	1.05 1.15	1.15 1.30
October 7.....	1.32 .....	.....	.....	1.10 1.18	1.17 1.30
November 18.....	1.35 1.36	.....	.....	1.5 1.30	1.32 1.38
December 2.....	1.35 1.36	.....	.....	1.5 1.30	1.32 1.38
1877.					
January 6.....	1.47 .....	1.40 .....	.....	1.35 1.40	1.38 1.47
February 3.....	1.60 1.63	1.40 .....	.....	1.45 1.50	1.48 1.65
March 3.....	1.65 .....	1.45 .....	.....	1.45 .....	1.55 1.65
April 7.....	.....	1.45 .....	.....	1.45 1.54	1.68 .....
May 19.....	1.95 .....	1.85 1.90	.....	.....	2.10 2.25
June 2.....	1.90 .....	.....	.....	.....	1.80 1.90
July 14.....	.....	1.67 .....	.....	1.70 1.80	1.70 2.10
August 4.....	.....	.....	.....	1.40 1.45	1.45 1.50
September 1.....	1.24 .....	1.22 .....	.....	1.25 1.30	1.30 1.35
October 6.....	1.26½ 1.27	1.26 .....	.....	1.33 1.35	1.40 1.45
November 3.....	1.25 1.27	.....	.....	1.32 1.38	1.35 1.42
December 1.....	1.27 1.29	1.25 .....	.....	1.32 1.38	1.35 1.42
1878.					
January 5.....	1.27 1.30	1.25 .....	.....	1.32 1.38	1.33 1.41
February 2.....	1.28 1.29	.....	.....	1.25 1.30	1.27 1.33
March 2.....	1.28 1.30	1.26 1.27	.....	.....	1.27 1.33
April 6.....	1.27 1.28	1.25 .....	.....	.....	1.33 1.40
May 10.....	1.21 .....	1.19 .....	.....	.....	1.30 1.37
June 16.....	1.07 .....	.....	1.02 .....	.....	1.18 1.22
July 7.....	1.03 .....	.98 .....	.....	.....	1.03 1.10
August 4.....	1.15 .....	1.11 .....	.....	.95 1.00	1.00 1.15
September 14.....	1.14 .....	1.11 .....	1.05 .....	.97 1.02	1.02 1.13
October 5.....	1.13 .....	1.10 .....	1.05 .....	.95 1.00	1.00 1.10
November 9.....	1.10 1.12	1.03 .....	.95 .....	.93 .95	.92 1.00
December 1.....	1.12 1.15	1.05 .....	.....	.95 1.03	.93 1.02
1879.					
January 5.....	1.10 .....	1.07 .....	1.00 .....	.95 1.00	.90 1.03
February 2.....	1.08 .....	1.05 .....	.98 1.00	.95 1.00	.90 1.00
March 3.....	1.11 1.14	1.10 .....	1.05 .....	1.04 1.05	1.04 1.08
April 4.....	1.12 1.13	1.11 1.12	1.04 1.05	1.09 .....	1.04 1.08
May 2.....	1.10 .....	1.08 .....	1.03 .....	1.09 1.10	1.04 1.08
June 6.....	1.10 .....	1.08 .....	1.04 .....	1.12 .....	1.10 1.13
July 4.....	1.12 .....	1.10 .....	.....	1.12 1.13	1.10 1.15
August 1.....	1.15 .....	1.13 .....	1.08 .....	1.08 1.10	1.12 1.15
September 5.....	1.03 .....	.....	.....	1.00 .....	1.00 1.02
October 3.....	1.15½ .....	1.14 .....	.....	1.10 1.15	1.10 1.17
November 14.....	1.24 .....	1.0 .....	.....	1.25 1.30	1.25 1.30
December 12.....	1.40 .....	.....	1.33 .....	1.33 1.49	1.35 1.42

TABLE IV. (t).—Continued.

Month and Day of Quotation.	Number One Hard.	Number One Northern.	Number Two Northern.	Red and Amber Winter.	White Winter.
1880.					
January 2.....	\$1.45 @ .....	\$1.43 @ .....	..... @ .....	\$1.38 @ 1.45	\$1.40 @ 1.47
February 6.....	1.35 .....	.....	.....	1.30 1.35	1.32 1.37
March 12.....	1.35 1.37 .....	.....	\$1.35 .....	1.40 1.45	1.36 1.42
April 2.....	1.30 .....	.....	.....	1.30 1.32	1.28 1.34
May 6.....	1.24 .....	1.22 .....	.....	1.23 .....	1.19 1.20
June 11.....	1.23 .....	1.18 .....	.....	.....	1.19 1.20
July 2.....	1.11 .....	.....	.....	.....	1.05 .....
August 6.....	1.25 .....	.....	.....	1.04 .....	1.02 1.07
September 3.....	1.13 .....	.....	.....	1.00 1.02	1.00 1.02
October 1.....	1.08 .....	1.06 .....	.....	.98 1.02	.95 1.00
November 5.....	1.16½ .....	.....	.....	.....	1.06 1.12
December 3.....	1.25 1.27½ .....	.....	.....	.....	1.15 .....
1881.					
January 1.....	1.24 .....	.....	.....	1.07 .....	1.08½ .....
February 5.....	1.20 .....	.....	.....	.....	1.05 1.10
March 5.....	1.25 .....	.....	.....	1.06 1.08	1.05 1.10
April 2.....	1.25 .....	.....	.....	1.14 1.16	1.12 1.14
May 7.....	1.25 1.26 .....	.....	.....	.....	.....
June 4.....	1.23 .....	.....	.....	.....	.....
July 2.....	1.27 .....	.....	.....	1.26 .....	1.26 .....
August 13.....	1.27 .....	.....	.....	1.27 1.30	1.25 1.28
September 4.....	1.40½ .....	.....	.....	1.38 1.39	1.37 1.38
October 1.....	1.62 .....	.....	.....	1.52 1.56	1.48 1.52
November 5.....	1.48 .....	1.49 .....	.....	1.42 1.45	1.40 1.42
December 3.....	1.50 .....	.....	.....	1.36 1.38	1.34 1.36
1882.					
January 14.....	1.55 .....	.....	.....	1.43 .....	1.42 .....
February 4.....	1.57 .....	.....	.....	1.45 .....	1.41½ 1.43
March 4.....	1.60 .....	.....	.....	1.32 .....	1.30 .....
April 1.....	1.59 .....	.....	.....	1.36 1.37	1.36 1.37
May 8.....	1.68 .....	.....	.....	1.42 1.43	1.39 1.40
June 10.....	1.60 .....	.....	.....	1.42 .....	1.32 .....
July 7.....	1.45 .....	.....	.....	1.32 .....	1.30 .....
August 6.....	1.38 .....	.....	.....	1.25 .....	1.25 .....
September 2.....	.....	.....	.....	1.08 1.09	1.08 1.09
October 7.....	1.15 1.16 .....	.....	.....	1.03 .....	1.04 1.05
November 4.....	1.20½ .....	.....	.....	1.03 1.04	1.03 1.04
December 2.....	1.17 .....	.....	.....	1.00 1.03½	1.00 1.03½
1883.					
January 6.....	1.18 .....	1.13 .....	.....	1.00 1.03	1.00 1.03
February 4.....	1.25 .....	.....	.....	1.12 1.13	1.09 1.13
March 3.....	1.30 .....	.....	.....	1.18 1.20	1.13 1.17
April 22.....	1.26 1.27 1.22 1.23 .....	.....	.....	1.13 .....	1.08 .....
May 5.....	1.26 1.27 1.22 1.23 .....	.....	.....	1.18 .....	1.12 .....
June 16.....	1.23 1.19 .....	.....	.....	1.20 .....	1.14 .....
July 7.....	1.18½ .....	1.14½ .....	.....	1.12 .....	1.06 .....
August 4.....	1.21½ .....	1.15 .....	.....	1.17 1.18	1.12 1.12½
September 1.....	1.28 .....	.....	.....	1.15 1.19	1.13 1.17
October 6.....	1.15 .....	.....	.....	1.10 .....	1.09 .....
November 3.....	1.11½ .....	1.03 .....	.....	1.08 1.08½	1.08½ .....
December 1.....	1.15 1.15½ .....	1.09½ 1.10½ .....	.....	1.10 1.11	1.10 1.11
1884.					
January 5.....	1.15 .....	1.10 .....	.....	1.09 .....	1.09 .....
February 2.....	1.11 1.12 .....	1.09 .....	.....	1.07 .....	1.07 .....
March 1.....	1.13¾ .....	1.10 .....	.....	1.08 .....	1.08 .....
April 5.....	1.09½ .....	1.04½ .....	.....	1.01 .....	1.01 .....
May 3.....	1.15 .....	1.10 .....	.....	1.09 .....	1.09 .....
June 7.....	1.04½ .....	1.00 .....	.....	1.03 1.05	1.07 1.07½
July 5.....	1.00 .....	.95 .....	.....	.98 .....	1.02 1.02½
August 16.....	.94 .....	.89 .....	.....	.86 .....	.92 .....
September 6.....	.90 .....	.86 .....	.....	.85 .....	.85 .....
October 11.....	.85½ .....	.81½ .....	.....	.86 .....	.83 .....
November 1.....	.82½ .....	.79 .....	.....	.82 .....	.80 .....
December 6.....	.81½ .....	.76½ .....	.....	.80½ .....	.80½ .....
1885.					
January 3.....	.90 .....	.82 .87 .80 .....	.....	.85 .85½ .....	.85 .....
February 7.....	.94 .....	.94 .....	.....	.91 .....	.92 .....
March 7.....	.93 .....	.90 .....	.88 .....	.89 .90 .....	.90 .91
April 4.....	.93½ .....	.90 .91 .88 .....	.....	.90 .....	.91½ .....
May 2.....	1.09 .....	1.06½ .....	.....	1.08 .....	1.10 .....
June 6.....	.98 .....	.93½ .96 .....	.....	1.01½ .....	1.01½ .....
July 4.....	.98½ .....	.97 .....	.....	1.01 .....	1.00 .....
August 8.....	.9½ .....	.96 .....	.94 .....	.99 1.00 .....	.....
September 5.....	.87½ .....	.85 .....	.85½ .....	.91 .....	.87½ .....
October 3.....	.98 1.00 .....	.....	.....	.95 .....	.94 .....
November 7.....	1.02 1.03 .....	.98 .....	.....	.98 .....	.96 .....
December 5.....	1.00 1.01 .....	.97 .....	.....	.97 .....	.97 .....

TABLE IV. (t).—Continued.

Month and Day of Quotation.	Number One Hard.	Number One Northern.	Number Two Northern.	Red and Amber Winter.	White Winter.
1886.					
January 2.....	\$1.01 @	\$0.98 @	\$0.98 @	\$0.94 @	\$0.94 @
February 6.....	.97 $\frac{1}{2}$	.93 $\frac{1}{2}$	.94	.92	.93 $\frac{1}{2}$
March 6.....	.97 $\frac{1}{2}$	.94 $\frac{1}{2}$		.94 $\frac{1}{2}$	.94 $\frac{1}{2}$
April 3.....	.93	.90		.92	.91
May 1.....	.89 $\frac{3}{4}$	.86 $\frac{3}{4}$		.88 $\frac{1}{2}$	.88
June 5.....	.87 $\frac{1}{2}$	.85 $\frac{1}{2}$		.85 $\frac{1}{2}$	.84 $\frac{1}{2}$
July 3.....	.85 $\frac{1}{2}$	.83 $\frac{1}{2}$		.84	.84 $\frac{1}{2}$
August 7.....	.85 $\frac{1}{2}$	.84		.81 $\frac{1}{2}$	.81
September 4.....	.86 $\frac{1}{2}$	.84 $\frac{1}{2}$		.84	.82
October 2.....	.83 $\frac{1}{2}$	.81 $\frac{1}{2}$		.80	.79 $\frac{1}{2}$
November 7.....	.83	.81 $\frac{1}{2}$	.84	.80 $\frac{1}{2}$	.80
December 4.....	.91 $\frac{3}{4}$	.89 $\frac{3}{4}$		.85 $\frac{1}{2}$	.84 $\frac{1}{2}$
1887.					
January 7.....	.92	.90 $\frac{3}{4}$		.89	.88
February 5.....	.91 $\frac{1}{2}$	.90 $\frac{1}{2}$		.88 $\frac{1}{4}$	.88 $\frac{1}{4}$
March 5.....	.90 $\frac{3}{4}$	.89 $\frac{3}{4}$		.88 $\frac{1}{2}$	.88 $\frac{1}{2}$
April 2.....	.89 $\frac{1}{2}$	.87 $\frac{1}{4}$		.86 $\frac{3}{4}$	.86 $\frac{3}{4}$
May 7.....	.91 $\frac{1}{2}$	.90 $\frac{1}{2}$		.87 $\frac{1}{2}$	.87 $\frac{1}{4}$
June 4.....	.91 $\frac{3}{4}$	.90 $\frac{3}{4}$		.92 $\frac{1}{4}$	.92
July 2.....	.83	.81 $\frac{1}{4}$		.94 $\frac{1}{2}$	.94
August 6.....	.80 $\frac{1}{2}$	.78 $\frac{1}{2}$		.84	.85
September 3.....	.81 $\frac{1}{2}$	.79		.82	.85
October 1.....	.83 $\frac{1}{2}$	.84		.78 $\frac{1}{2}$	.83 $\frac{1}{4}$
November 5.....	.84 $\frac{1}{2}$	.81	.84	.79 $\frac{1}{2}$	.80 $\frac{1}{4}$
December 3.....	.90	.86		.86 $\frac{1}{2}$	.83 $\frac{1}{2}$
1888.					
January 7.....	.91	.88 $\frac{1}{2}$		.90	.92 $\frac{1}{2}$
February 4.....	.91 $\frac{1}{2}$	.89 $\frac{1}{2}$		.87 $\frac{3}{4}$	.89
March 10.....	.90 $\frac{3}{8}$	.88 $\frac{5}{8}$		.88 $\frac{1}{2}$	.92
April 7.....	.91	.86 $\frac{3}{4}$		.88	.90
May 5.....	.97	.91 $\frac{1}{2}$		.93	.95
June 2.....	.91 $\frac{1}{4}$			.92 $\frac{3}{4}$	.95
July 7.....	.88 $\frac{3}{8}$	.86 $\frac{3}{8}$		.92 $\frac{1}{2}$	.95
August 4.....	.93	.92 $\frac{1}{8}$		.91	.92
September 1.....	1.03 $\frac{1}{2}$			.99	.99 $\frac{1}{2}$
October 6.....	1.38	1.40 $\frac{1}{4}$	1.28 $\frac{3}{8}$	1.19	1.22
November 3.....	1.47 $\frac{1}{8}$			1.11 $\frac{3}{4}$	1.14 $\frac{1}{2}$
December 1.....	1.34 $\frac{1}{8}$	1.42 $\frac{1}{8}$	1.27 $\frac{1}{8}$	1.09 $\frac{1}{2}$	1.08 $\frac{1}{2}$
1889.					
January 5.....	1.28 $\frac{1}{8}$	1.36 $\frac{1}{8}$	1.20 $\frac{1}{8}$	1.16 $\frac{1}{8}$	1.04 $\frac{1}{8}$
February 2.....	1.20 $\frac{1}{8}$	1.29 $\frac{1}{8}$	1.12 $\frac{1}{8}$	1.07 $\frac{1}{8}$	1.02 $\frac{1}{8}$
March 2.....	1.30 $\frac{1}{4}$	1.37 $\frac{1}{4}$	1.19 $\frac{1}{4}$	1.12 $\frac{1}{4}$	1.03 $\frac{1}{4}$
April 6.....	1.20 $\frac{1}{8}$	1.30 $\frac{1}{8}$	1.02 $\frac{1}{4}$	.97 $\frac{1}{4}$	1.01
May 4.....	1.05	1.22 $\frac{1}{2}$	1.00	.83	.88
June 1.....	1.02 $\frac{1}{2}$	1.20	.98	.81	.87
July 6.....	1.06 $\frac{1}{2}$	1.25 $\frac{1}{2}$	1.00		.90 $\frac{1}{2}$
August 3.....	1.00	1.26 $\frac{1}{2}$	.95	.98	.82
September 7.....	.90	.95	.88	.90	.83
October 7.....	.96 $\frac{1}{4}$		.86 $\frac{3}{4}$		.87
November 2.....	.89 $\frac{1}{2}$		.85		.83
December 7.....	.90 $\frac{1}{2}$		.86 $\frac{1}{2}$		.85
1890.					
January 4.....	.91 $\frac{1}{2}$	.89	.85 $\frac{1}{2}$	.85	.78
February 1.....	.90	.87	.84	.82 $\frac{1}{2}$	.83
March 1.....	.89 $\frac{1}{4}$	.89 $\frac{3}{4}$	.84 $\frac{1}{4}$	.82	.82 $\frac{1}{2}$
April 5.....	.92 $\frac{1}{2}$	.93	.91 $\frac{1}{2}$		.85 $\frac{1}{2}$
May 3.....	.98	.96		.97	.97
June 6.....	.98 $\frac{1}{2}$	.96 $\frac{1}{2}$		.94 $\frac{1}{2}$	.94
July 4.....	.96	.95		.91 $\frac{3}{4}$	.92
August 1.....	1.01	1.00		.97	.94
September 5.....	1.15	1.12	1.10	1.01	.99
October 3.....	1.07 $\frac{1}{2}$	1.06 $\frac{1}{2}$	1.06 $\frac{1}{2}$	1.02 $\frac{1}{2}$	1.02
November 7.....	1.09 $\frac{3}{4}$	1.04 $\frac{3}{4}$	.98 $\frac{3}{4}$	1.03 $\frac{1}{4}$	.98
December 1.....	1.12	1.06 $\frac{3}{4}$	.98	.99 $\frac{3}{4}$	.98 $\frac{1}{4}$
1891.					
January 5.....	1.06 $\frac{1}{2}$	1.07	1.01	.95	1.00
February 2.....	1.16		1.12	1.08	1.06
March 2.....	1.14	1.10 $\frac{1}{2}$	1.13	1.06	1.05
April 1.....	1.22	1.23	1.20		1.10 $\frac{1}{2}$
May 2.....	1.40	1.25			1.11
June.....	1.12 $\frac{3}{8}$		1.09 $\frac{7}{8}$		1.11
July.....	1.05 $\frac{1}{8}$		1.01 $\frac{1}{8}$	.99	1.05 $\frac{1}{2}$
August.....	1.05 $\frac{1}{2}$		1.02 $\frac{1}{8}$	.98 $\frac{1}{8}$	1.06
September.....	1.15 $\frac{3}{8}$	1.16 $\frac{1}{4}$	1.11 $\frac{1}{2}$	1.01 $\frac{1}{2}$	.93 $\frac{1}{2}$
October.....	1.02 $\frac{1}{4}$		1.01 $\frac{1}{2}$	1.04	1.04 $\frac{1}{2}$
November.....		1.01 $\frac{1}{2}$	1.02	.97 $\frac{3}{8}$	1.02
December.....	1.03 $\frac{1}{2}$	1.02	1.02 $\frac{3}{8}$	.97 $\frac{1}{2}$	1.00



TABLE IV. (u).

The price at Buffalo, N. Y., 1871-1891, of Minnesota Spring and No. 1 hard spring wheat compared with those of red and amber winter wheat.

Month and Day of Comparison.	Excess in Prices of Minnesota Spring over Red and Amber.	Month and Day of Comparison.	Excess in Prices of Minnesota Spring over Red and Amber.	Month and Day of Comparison.	Excess in Prices of Minnesota Hard over Red and Amber.
1871		1874.		1877.	
January 7.....	@ .....	January 3.....	@ .....	January 6.....	12 @ 7
February 4.....	.....	February 7.....	.....	February 3.....	15 13
March 11.....	.....	March 7.....	.....	March 3.....	..... 20
April 1.....	.....	April 4.....	.....	April 7.....	.....
May 5.....	.....	May 2.....	.....	May 19.....	.....
June 3.....	.....	June 6.....	-12 -17	June 2.....	.....
July 15.....	- 6 - 7	July 3.....	- 2 - 7	July 14.....	.....
August 19.....	.....	August 1.....	.....	August 4.....	.....
September 23.....	.....	September 5.....	.....	September 1.....	- 1 - 6
October 7.....	.....	October 3.....	.....	October 6.....	- 5½ - 8
November 18.....	- 7	November 7.....	.....	November 3.....	- 7 -11
December 16.....	-14 -15	December 5.....	.....	December 1.....	- 5 - 9
		Excess in Prices of Minnesota Hard over Red and Amber.			
1872.		1875.		1878.	
January 5.....	-12 -16	January 3.....	6 @ - 1	January 5.....	- 5 - 8
February 3.....	-10 -13	February 13.....	3 - 3	February 2.....	3 - 1
March 2.....	.....	March 6.....	3 - 4	March 3.....	.....
April 6.....	.....	April 3.....	3 .....	April 6.....	.....
May 11.....	-15 -20	May 1.....	.....	May 10.....	.....
June 8.....	.....	June 12.....	.....	June 16.....	.....
July 6.....	.....	July 10.....	-13 .....	July 7.....	.....
August 3.....	.....	August 14.....	- 5 .....	August 4.....	20 15
September 6.....	.....	September 4.....	.....	September 14.....	17 12
October 5.....	-10	October 2.....	3 .....	October 5.....	18 13
November 2.....	-13 - 7	November 6.....	- 5 .....	November 9.....	17 .....
December 7.....	.....	December 18.....	- 5 .....	December 1.....	17 12
1873.		1876.		1879.	
January 6.....	-20	January 3.....	10 4	January 5.....	15 10
February 1.....	-16	February 5.....	2 7	February 2.....	13 8
March 1.....	-10	March 4.....	4 .....	March 3.....	7 8
April 5.....	- 7 -12	April 1.....	2 4	April 4.....	3 4
May.....	.....	May 6.....	.....	May 2.....	1 .....
June 7.....	.....	June 3.....	2 .....	June 6.....	..... 2
July 4.....	-13 -26	July 1.....	- 1 .....	July 4.....	..... 1
August 2.....	-17 -16	August 5.....	9 7	August 1.....	7 5
September 6.....	.....	September 2.....	16 7	September 5.....	3 .....
October 4.....	.....	October 7.....	22 11	October 3.....	5½ ½
November 8.....	-12 -22	November 18.....	10 6	November 14.....	.....
December 6.....	.....	December 2.....	10 6	December 12.....	.....

TABLE IV. (u).—Continued.

Month and Day of Comparison.	Excess in Prices of Minnesota Hard over Red and Amber.	Month and Day of Comparison.	Excess in Prices of Minnesota Hard over Red and Amber.	Month and Day of Comparison.	Excess in Prices of Minnesota Hard over Red and Amber.
1880.		1881.		1888.	
January 2.....	7 @ .....	January 5.....	6 @ .....	January 7.....	1 @ — 11½
February 6.....	5 .....	February 2.....	4 .....	February 4.....	3¾ — 2½
March 12.....	— 5 — 8 .....	March 1.....	5¾ .....	March 10.....	2½ — 7½
April 2.....	— 2 .....	April 5.....	8¼ .....	April 7.....	5 .....
May 6.....	1 .....	May 3.....	6½ .....	May 5.....	4 .....
June 11.....	.....	June 7.....	1½ .....	June 2.....	— 1½ — 3¾
July 2.....	.....	July 5.....	2 .....	July 7.....	.....
August 6.....	21 .....	August 16.....	8 .....	August 4.....	4 .....
September 3.....	13 .....	September 6.....	4 .....	September 1.....	3½ .....
October 1.....	10 .....	October 11.....	.....	October 6.....	19 .....
November 5.....	.....	November 1.....	½ .....	November 3.....	35½ .....
December 3.....	.....	December 6.....	1 .....	December 1.....	25½ .....
1881.		1885.		1889.	
January 1.....	7 .....	January 3.....	4½ .....	January 5.....	24½ .....
February 5.....	.....	February 7.....	3 .....	February 2.....	18½ .....
March 5.....	19 .....	March 7.....	3 .....	March 2.....	28½ .....
April 2.....	11 .....	April 4.....	3½ .....	April 6.....	22½ .....
May 7.....	.....	May 2.....	1 .....	May 4.....	17 .....
June 4.....	.....	June 6.....	— 3½ .....	June 1.....	15½ .....
July 2.....	1 .....	July 4.....	2½ .....	July 6.....	16 .....
August 13.....	— 3 .....	August 8.....	— 3½ .....	August 3.....	18 .....
September 4.....	2½ .....	September 5.....	— 3½ .....	September 7.....	7 .....
October 1.....	24 .....	October 3.....	3 .....	October 7.....	3¾ .....
November 5.....	4 .....	November 7.....	4 .....	November 2.....	6½ .....
December 3.....	14 .....	December 5.....	3 .....	December 7.....	5½ .....
1882.		1886.		1890.	
January 14.....	12 .....	January 2.....	7 .....	January 4.....	6½ .....
February 4.....	12 .....	February 6.....	5½ .....	February 1.....	7½ .....
March 4.....	28 .....	March 6.....	2¾ .....	March 1.....	7½ .....
April 1.....	23 .....	April 3.....	1 .....	April 5.....	7 .....
May 8.....	26 .....	May 1.....	7 .....	May 3.....	1 .....
June 10.....	18 .....	June 5.....	2½ .....	June 6.....	3½ .....
July 7.....	13 .....	July 3.....	1½ .....	July 4.....	4½ .....
August 6.....	13 .....	August 7.....	4 .....	August 1.....	6 .....
September 2.....	.....	September 4.....	2½ .....	September 5.....	14 .....
October 7.....	12 .....	October 2.....	3½ .....	October 3.....	4¾ .....
November 4.....	17½ .....	November 7.....	5 .....	November 7.....	6½ .....
December 2.....	17 .....	December 4.....	5½ .....	December 1.....	12¼ .....
1883.		1887.		1891.	
January 6.....	18 .....	January 7.....	3 .....	January 5.....	6½ .....
February 4.....	13 .....	February 5.....	3 .....	February 2.....	10 .....
March 3.....	12 .....	March 5.....	4½ .....	March 2.....	9 .....
April 22.....	13 .....	April 7.....	3 .....	April.....	11½ .....
May 5.....	8 .....	May 2.....	— 3 .....	May.....	29 .....
June 16.....	3 .....	June 4.....	— 3½ .....	June.....	.....
July 7.....	6½ .....	July 2.....	— 1 .....	July.....	1 .....
August 4.....	4½ .....	August 6.....	— 1½ .....	August.....	11½ .....
September 1.....	13 .....	September 3.....	3½ .....	September.....	11½ .....
October 6.....	5 .....	October 1.....	4 .....	October.....	5½ .....
November 3.....	3½ .....	November 5.....	3½ .....	November.....	.....
December 1.....	5½ .....	December 3.....	4½ .....	December.....	2¼ .....

TABLE IV. (v).

The prices at Buffalo, N. Y., 1871-1891, of Minnesota Spring and Minnesota No. 1 Hard wheat compared with those of White Winter wheat.

Month and Day of Comparison.	Excess in Prices of Minn. Spring over White.	Month and Day of Comparison.	Excess in Prices of Minn. Spring over White.	Month and Day of Comparison.	Excess in Prices of Minn. Hard over White.
1871.		1874.		1877.	
January 7..... @ .....		January 3..... @ .....		January 6..... 9 @ .....	
February 4.....		February 7.....		February 3..... 12 - 2	
March 11.....		March 7.....		March 3..... 10 .....	
April 1.....		April 4.....		April 7..... -15 -30	
May 5.....		May 2.....		May 19..... 10 .....	
June 3.....		June 6..... -17 -37		June 2.....	
July 15..... -17 -27		July 3..... -10 -30		July 14.....	
August 19.....		August 1.....		August 4.....	
September 23.....		September 5.....		September 1..... - 4 - 9	
October 7.....		October 3.....		October 6..... -13½ -18	
November 18..... - 7 -17		November 7.....		November 3..... -10 -15	
December 16..... -24 -25		December 5..... - 8 -13		December 1..... - 8 -13	
1872.		1875.		1878.	
January 5..... -27 -25		January 3..... - 2 - 7		January 5..... - 6 -11	
February 3..... -25 -23		February 13..... - 5 - 9		February 2..... 1 4	
March 2..... -15 -25		March 6..... - 5 -10		March 2..... 1 3	
April 6..... -16 -25		April 3..... - 2 -10		April 6..... - 6 -12	
May 11..... -30 -40		May 1..... -15 -18		May 10..... - 9 -16	
June 8..... -42½ -50		June 12..... -15½ -17		June 16..... -11 -15	
July 6.....		June 10..... -18		July 7..... - 7	
August 3.....		August 14..... -11 -20		August 4..... -15	
September 6.....		September 4..... - 7		September 14..... 12 1	
October 5..... -35 -36		October 2..... - 5 -10		October 5..... 13 3	
November 2..... -25 -33		November 6..... - 4 - 8		November 9..... 18 12	
December 7.....		December 18.....		December 1..... 19 13	
		Excess in Prices of Minn. Hard over White Winter.			
1873.		1876.		1879.	
January 6..... -35 -40		January 3..... 3 1		January 5..... 20 7	
February 1..... -21 -41		February 5..... 5 .....		February 2..... 18 8	
March 1..... -10 -35		March 4..... 7 - 2		March 3..... 7 6	
April 5..... - 7 -32		April 1..... 6 - 2		April 4..... 8 5	
May.....		May 6..... 7 .....		May 2..... 6 2	
June 7.....		June 3..... 3 - 9		June 6..... - 2 - 3	
July 4..... -29 -40½		July 1..... - 6 -16		July 4..... 3 .....	
August 2..... -32 -46		August 5..... 6 - 8		August 1..... 3 1	
September 6.....		September 2..... 15 .....		September 5..... 5½ -1½	
October 4.....		October 7..... 3 - 2		October 3..... - 1 - 6	
November 8..... -32 -42		November 18.....		November 14..... 5 - 2	
December 6.....		December 2.....			



TABLE IV. (v).—Continued.

Month and Day of Comparison.	Excess in Prices of Minn. Hard over White.	Month and Day of Comparison.	Excess in Prices of Minn. Hard over White.	Month and Day of Comparison.	Excess in Prices of Minn. Hard over White.
1880.		1884.		1888.	
January 2.....	5 @ - 2	January 5.....	6 @.....	January 7.....	@ - 1 3/4
February 6.....	3 - 2	February 2.....	4 5	February 4.....	2 1/2 2
March 12.....	- 1 - 5	March 1.....	5 3/4	March 10.....	22 1/2 22 1/8
April 2.....	2 - 4	April 5.....	8 1/2	April 7.....	1 .....
May 6.....	5 4	May 3.....	6 .....	May 5.....	1 1/2 .....
June 11.....	4 3	June 7.....	- 2 1/2 - 8	June 2.....	- 8 3/4
July 2.....	6 .....	July 5.....	- 2 - 2 1/2	July 7.....	- 7 1/8
August 6.....	22 18	August 16.....	2 .....	August 4.....	1/2 .....
September 3.....	13 11	September 6.....	5 2	September 1.....	.....
October 1.....	13 8	October 11.....	2 1/2 1 1/2	October 6.....	.....
November 5.....	10 1/2 4 1/2	November 1.....	2 1/2 1 1/2	November 3.....	.....
December 3.....	10 12 1/2	December 6.....	1 .....	December 1.....	.....
1881.		1885.		1889.	
January 1.....	15 1/2	January 3.....	5 .....	January 5.....	21 3/8 28 7/8
February 5.....	15 10	February 7.....	2 .....	February 2.....	16 3/8 22 1/8
March 5.....	20 15	March 7.....	3 2	March 2.....	22 1/2 29 1/8
April 2.....	13 11	April 4.....	2 .....	April 6.....	19 3/8 29 3/8
May 7.....	.....	May 2.....	- 1 .....	May 4.....	5 22 1/2
June 4.....	.....	June 6.....	- 3 1/2	June 1.....	16 1/2 26
July 2.....	1 .....	July 4.....	- 1 1/2 - 1	July 6.....	18 1/2 28 1/2
August 13.....	2 - 1	August 8.....	.....	August 3.....	12 1/2 22 3/4
September 4.....	3 1/2 2 1/2	September 5.....	1/2 .....	September 7.....	4 .....
October 1.....	12 10	October 3.....	4 6	October 7.....	..... - 1/4
November 5.....	8 7	November 7.....	6 7	November 2.....	.....
December 3.....	16 14	December 5.....	3 4	December 7.....	.....
1882.		1886.		1890.	
January 14.....	13 .....	January 2.....	7 .....	January 4.....	13 1/2 7 1/2
February 4.....	15 1/2 14	February 6.....	4 1/4 3 1/2	February 1.....	12 9
March 4.....	30 .....	March 6.....	23 3/4 .....	March 1.....	11 1/4 14 3/4
April 1.....	23 22	April 3.....	2 .....	April 5.....	3 1/2 .....
May 8.....	29 28	May 1.....	13 1/8 .....	May 3.....	4 1/2 2 1/2
June 10.....	28 .....	June 5.....	3 1/4 .....	June 6.....	3 .....
July 7.....	15 .....	July 3.....	1 1/8 .....	July 4.....	11 .....
August 6.....	13 .....	August 7.....	4 1/2 - 1	August 1.....	16 .....
September 2.....	.....	September 4.....	4 1/8 25 1/2	September 5.....	5 1/2 .....
October 7.....	11 11	October 2.....	35 1/8 3 1/8	October 3.....	11 3/4 8 1/4
November 4.....	17 1/2 16 1/2	November 7.....	6 1/2 .....	November 7.....	13 .....
December 2.....	17 18 1/2	December 4.....	6 3/4 6 3/8	December 1.....	13 3/4 .....
1883.		1887.		1891.	
January 6.....	18 15	January 7.....	4 .....	January 5.....	8 7
February 4.....	16 12	February 5.....	3 3 3/4	February 2.....	11 1/2 .....
March 8.....	17 13	March 5.....	4 .....	March 2.....	10 .....
April 22.....	18 19	April 2.....	2 1/4 .....	April 1.....	13 14
May 5.....	14 15	May 7.....	..... - 1	May 2.....	23 .....
June 16.....	9 .....	June 4.....	- 2 1/2 .....	June .....	.....
July 7.....	12 1/2 9 1/2	July 2.....	2 13 1/4	July.....	- 1 3/8
August 4.....	..... 9	August 6.....	- 4 1/4 .....	August.....	- 2 1/2
September 1.....	15 11	September 3.....	11 1/2 5 1/2	September.....	12 3/4 12 3/4
October 6.....	6 .....	October 1.....	3 5 1/2	October.....	1/4 .....
November 3.....	6 .....	November 5.....	3 4 1/2	November.....	.....
December 1.....	5 4 1/2	December 3.....	..... 4 1/2	December.....	3 1/2 .....

TABLE IV. (w).

An exhibit of the average of the currency prices for wheat sold in the months of September October, November and December in the years 1862 to 1873, inclusive, in certain towns in Minnesota, together with the average value of a paper dollar in gold in the months included in the table. (The prices have been compiled from the files of the local papers in the rooms of the Minnesota State Historical Society. Where two quotations are given the first is for No. 1 wheat, the second is for No. 2. When one is given no name for the grade is reported by the local papers.)

Years and Months.	Value of a Dollar Gold in Cur'ncy.	Min'neapolis.	Hastings.	Winona.	Rochester.	Mankato.	St. Cloud.
1860							
September .....		61.	73.8	77.		47.5	60.
October .....		67.	66.5	75.		47.5	42.5
November .....		61.	52.5	61.4		47.5	
December .....		61.		51.4	37.	47.5	
1861							
September .....		50	60.8	57.8			
October .....		55.	60.	62.4-59.			37.5
November .....		50.		55.5-51.8		41.	
December .....		52.5	50.	56.-51.8		41.5	37.5
1862							
September ..	118.5		63.2	74.5-70.3			
October .....	128.5	70.	70.	77.-73.9			
November ..	131.1	67.	63.8	69.3-66.			
December ..	132.3		73.	72.3-67.7			
1863							
September ..	134.2	62.5	62.5			50.	
October .....	147.7	74.	69.5		57.5	50.	
November ..	148.0	72.	73.		60.	57.5	
December ..	151.1	83.	76.5		61.	65.	82.5
1864							
September ..	222.5		147.5				
October .....	207.2						
November ..	233.5						
December ..	227.5						150.
1865							
September ..	143.9						58.5
October .....	145.5		121.6			50.	65.7
November ..	147.0		105.5				
December ..	146.2		92.5				57.5
1866							
September ..	145.5	140.	130.	160.-140.	145.		115.
October .....	148.3	142.5	142.5-128.3	151.-155.	147.5		120.
*November ..	143.8	143.	157.5-147.5	165.-145.	167.		120.
*December ..	136.7	135.		165.-147.5	164.		120.
1867							
September ..	143.4			155.-137.	156.-150.		128.
October .....	143.5		161.	172.-167.	156.-159.	125.	135.
November ..	139.6		150.5	165.-156.	147.-137.		129.
December ..	134.8		151.3	163.-157.	140.-130.		125.
1868							
September ..	143.6	138.0-124.5	127.5	135.-126.	125.-115.		130.-120.
October .....	137.1		103.5	198.3-84.3	105.-95.		
November ..	134.4		82.5	96.-86.	86.-76.		80.-70.
December ..	135.2		95.	97.3-87.8	83.8-74.		80.-70.
1869							
September ..	136.8		100.		85.5-80.	90.	85.
October .....	130.2	75.	77.5		71.	75.3-62.5	77.5
November ..	126.2		64.5		55.8	61.-57.	59.-52.5
December ..	121.5	66.	62.5		42.5	58.-51.	57.5
1870							
September ..	114.8	80.5-71.3	80.5-71.	85.5-80.		80.-75.	
October .....	112.8	80.-75.	84.3-82.5	86.5-81.5	75.	82.5-77.5	
November ..	111.4	80.-75.	88.-76.	82.5-77.5	69.5	70.-65.	
December ..	110.7	85.-80.	89.	85.3-81.5	70.	82.5-75.	
1871							
September ..	114.5	110.-100.	95.-85.	94.5-90.	92.5		87.5-82.5
October .....	113.2	120.-115.		107.-105.	99.5	108.5	102.-95.
November ..	111.2	120.-115.	121.	111.8-108.8	102.5		104.
December ..	109.3	120.-115.	112.-110.	113.-110.	102.		

TABLE IV. (w).—Continued.

Years and Months.	Value of a Dollar Gold in Cur'ncy.	Min'eapolis.	Hastings.	Winona.	Rochester.	Mankato.	St. Cloud.
1872							
September ..	113.5	101.1- 95.	99.5	103. - 96.3	96.5- 92.8	99. - 95.	81.5
October .....	113.2	99. - 95.	95.	102. - 96.	89.5- 84.8	88.8	85.
November .....	112.9	97.5- 95.	92.	98.8- 94.8	82. - 77.	87.5	77.5
December ....	112.2	97.5- 95.	91.	105. -100.	89. - 84.	82.	72.5
1873							
September ..	112.7	98.8	97.	115.8-110.	90. - 82.	75. - 72.	86.
October .....	108.9	85.	92.5	90. - 85.	81. - 78.	.....	77. - 75.
November .....	108.6	86.6	91.5	84.3- 83.	80.3- 77.3	77. - 74.	72. - 70.
December ....	110.0	94.	96.	97. - 93.	90.3- 85.5	.....	81. - 79.

\* St. Paul, November, 132.5; December, 149.

TABLE IV. (x).

An exhibit of the average gold prices for wheat sold in the months of September, October, November and December in the years 1862 to 1873, inclusive, in certain towns of Minnesota, together with the average value of a gold dollar in the paper currency of the times. (The prices included in the table have been compiled from the files of the local paper in the rooms of the Minnesota State Historical Society. When two quotations are given, the first is for No. 1 and the second for No. 2. When one is given no name for the grade is reported by the local papers.)

Years and Months.	Value of a Dollar Cur'ncy in Gold.	Min'eapolis.	Hastings.	Winona.	Rochester.	Mankato.	St. Cloud.
1860							
September .....		61.	73.8				
October .....		67.					
November .....		61.					
December .....		61.					
1861							
September .....	50.						
October .....	55.						
November .....	50.						
December .....	52.5						
1862							
September .....	84.4		53.6	62.9- 59.5			
October .....	77.8	54.5	54.5	59.9- 57.4			
November .....	76.3	51.1	48.6	52.9- 50.4			
December ....	75.5		55.1	54.6- 51.1			
1863							
September .....	74.5	46.6	46.6			37.3	
October .....	67.7	50.1	47.1			33.9	
November .....	67.6	48.6	49.3		38.9	38.9	
December ....	66.2	55.	50.6		40.4	43.	54.6
1864							
September ..	44.9		66.2				
October .....							
November .....							
December ....	44.0						66.
1865							
September ..	69.5						
October .....	68.7		83.6			34.4	40.7
November .....	68.0		71.7				45.1
December ....	68.4		63.3				39.3
1866							
September ..	68.7	96.2	89.3	110. - 96.2	99.6		79.
October .....	67.4	96.	96.0- 86.5	191.8- 91.	99.4		80.9
November .....	69.5	99.4	109.5-102.5	114.7-100.8	116.1		83.4
December ....	73.2	98.8		120.8-108.	120.		87.8
1867							
September ..	69.7			108. - 95.5	108.7-104.6		89.2
October .....	69.7		112.2	119.9-116.4	108.7-104.6	87.1	94.1
November .....	71.6		107.8	118.1-111.7	105.2- 98.1		92.4
December ....	74.2		112.2	120.9-116.5	103.9- 96.5		92.8



TABLE IV. (x).—*Continued.*

Years and Months.	Value of a Dollar Cur'ency in Gold.	Min'neapolis.	Hastings.	Winona.	Rochester.	Mankato.	St. Cloud.
1868							
September ..	69.6	96. - 86.7	88.3	94. - 87.7	87.0- 80.	.....	90.5- 83.5
October .....	72.9	71.1	76.9	78.9- 61.4	76.5- 69.3	.....	.....
November ....	74.4	61.4	65.1	71.4- 64.	64. - 56.5	.....	59.5- 52.1
December ....	74.0	70.3	74.0	70.6- 65.	62. - 54.8	.....	59.2- 51.8
1869							
September ..	73.1	.....	73.1	.....	62.5- 58.5	65.8	62.1
October .....	76.8	57.6	59.5	.....	54.5	57.8- 48.	59.5
November ....	79.2	.....	51.1	.....	44.2	48.3- 45.1	46.7- 41.6
December ....	82.3	54.3	51.4	.....	35.	47.7- 42.0	47.3
1870							
September ..	87.1	70.1- 62.1	70.1- 61.8	74.5- 69.7	.....	69.7- 65.3	.....
October .....	88.7	71.0- 66.5	74.7- 73.2	76.7- 72.3	66.5	73.2- 68.7	.....
November ....	89.8	71.8- 67.4	79.0- 68.2	74.1- 69.6	62.4	62.9- 58.4	.....
December ....	90.3	76.8- 72.2	80.4	77. - 73.6	63.2	74.5- 67.7	.....
1871							
September ..	87.3	96.0- 87.3	82.9- 74.2	82.5- 78.6	80.8	.....	76.4- 72.
October .....	88.3	106.0-101.5	.....	94.5- 92.7	87.9	95.8	90.1- 83.9
November ....	89.9	107.9-103.4	108.8	100.5- 97.8	92.1	.....	93.5
December ....	91.5	109.8-105.2	102.5-100.7	103.4-100.7	93.3	.....	.....
1872							
September ..	88.1	89.2- 83.7	87.7	90.7- 84.8	85.2- 81.7	87.2- 83.7	71.8
October .....	88.3	87.4- 83.9	83.9	90.1- 84.8	79. - 74.8	78.4	75.1
November ....	88.6	86.4- 84.2	81.5	87.5- 83.9	72.7- 68.2	77.5	68.7
December ....	89.1	86.9- 84.6	81.1	93.6- 89.1	79.3- 74.8	73.1	64.6
1873							
September ..	88.7	87.6	86.	102.7- 97.6	79.8- 72.7	66.5- 63.9	76.3
October .....	91.8	78.	84.9	82.6- 78.	74.4- 71.6	.....	70.7- 68.9
November ....	92.1	79.8	84.3	77.6- 76.4	73.9- 71.1	70.9- 68.2	66.3- 64.5
December ....	90.9	85.4	87.3	88.2- 84.5	82.2- 77.7	.....	73.6- 71.8

TABLE IV. (y).

An exhibit by years and groups of years from 1862 to 1895, inclusive, of the annual per capita product and export of wheat, the total export of wheat in bushels, the average gold farm price for wheat in Iowa, and the difference between that price and the average gold wheat prices for the four States of Iowa, Minnesota, Kansas, and Nebraska for the years 1868-71, and the gains and losses resulting to farmers in the West and at the seaboard, by reason of changed railway rates, etc.

Fiscal Years Ending with	PER CAPITA IN BUSHELS.		Export of Domestic Wheat in Bushels.	Average Gold Farm Value Per Bushel In Iowa. (a)	Loss or Gain Per Bushel in Iowa over Four States, 1868-71.
	Product.	Export.			
Sept. 30—					
1863			58,110,689	47.5	-19.2
1864			41,468,447	48.8	-17.9
1865			23,144,366	62.3	- 4.4
1866			16,494,353	71.4	* 4.7
1867			12,646,941	105.5	*38.8
1868	5.28	.73	26,323,041	103.3	*36.6
1869	5.46	.80	29,717,201	70.0	* 3.3
1870	6.21	1.43	53,900,780	42.8	-23.9
June 30—					
1871	5.49	1.36	52,580,111	70.4	* 3.7
1872	5.25	.99	38,995,755	88.0	*21.3
1873	5.55	1.28	52,011,715	75.4	* 8.7
1874	6.09	2.20	91,510,398	70.9	* 4.2
1875	6.48	1.70	72,912,817	57.8	- 8.9
1876	6.00	1.70	74,750,682	62.9	- 3.8
1877	5.79	1.26	57,043,936	84.7	*18.0
1878	7.08	1.99	92,071,726	85.7	*19.0
1879	7.92	3.10	147,684,214	50.0	-16.7
1880	8.25	3.69	180,304,180	92.0	*25.3
1881	8.94	3.71	186,321,514	82.0	*15.3
1882	6.72	2.38	121,893,380	106.0	*39.3
1883	8.64	2.82	147,811,316	70.0	* 3.3
1884	7.05	2.08	111,534,182	80.0	*13.3
1885	8.40	2.41	132,570,366	55.0	-11.7
1886	5.73	1.68	94,565,888	67.0	* .3
1887	7.17	2.68	153,804,969	60.0	- 6.7
1888	6.99	2.04	119,624,344	61.0	- 5.7
1889	6.24	1.48	88,600,742	85.0	*18.3
1890	7.20	1.62	109,430,467	63.0	- 3.7
1891	5.73	1.70	106,181,316	80.0	*13.3
1892	8.58	3.53	225,665,812	81.0	*14.3
1893	7.08	2.93	191,912,635	60.0	- 6.7
1894	5.34	2.46	164,283,129	49.0	-17.7
1895	6.06	2.12	144,812,718	50.0	-16.7
1896	6.03	1.83	126,443,968	46.0	-20.7
1863-67			151,864,796	69.6	* 2.9
1868-71			162,521,133	68.9	* 2.2
1872-75	5.85	1.55	255,430,685	70.0	* 3.3
1876-79	6.72	2.03	371,550,558	70.3	* 3.6
1880-83	8.13	3.14	636,330,399	86.2	*19.5
1884-87	7.08	2.22	492,475,405	65.0	- 2.7
1888-91	6.54	1.76	423,836,869	71.8	* 5.1
1892-95	67.5	2.75	726,674,294	67.6	* .9
1863-67			151,864,796	69.6	* 2.9
1868-74	5.61	1.27	345,039,001	72.5	* 5.8
1875-81	7.26	2.50	811,089,069	73.4	* 6.7
1882-88	7.23	2.29	881,804,454	69.0	* 2.3
1889-95	6.60	2.30	1,080,886,819	72.4	* 5.7
1863-95			3,220,684,139	71.6	* 4.9
1868-95	6.75	2.16	3,068,819,343	71.8	* 5.1

\* The asterisk here signifies plus (+)

(a) Calendar year ending December 31 before the close of the fiscal year.

TABLE IV. (γ).—Continued.

Fiscal Years Ending with	Total Loss or Gain in Iowa on Total Export of Wheat when Prices are Compared with Averages in Four States, 1868-'71.	AVERAGE VALUE PER BUSHEL OF EXPORTED WHEAT.		Excess Per Bushel Export Prices Over the Same for 1869-'72.	Total Loss or Gain at Seaboard on Total Export When Prices are Compared with Export Prices 1869-'72.	Average Freight Charge Per Bushel, Chicago to New York.	
		Currency	Gold.			All Rail.	Lake and Canal.
Sept. 30—							
1863	- 11,157,252	1.29	.948	-186	- 10,808,588	.....	22.9
1864	- 7,422,852	1.33	.851	-283	- 11,735,571	.....	28.4
1865	- 1,018,352	1.95	.965	-169	- 3,911,398	.....	26.6
1866	* 775,235	1.41	1.155	*.022	* 362,876	.....	29.6
1867	* 4,907,013	1.27	.900	-234	- 2,959,384	.....	22.4
1868	* 9,634,233	1.90	1.358	*.224	* 5,806,361	42.6	22.8
1869	* 980,668	1.39	1.010	-124	- 3,684,933	35.1	25.1
1870	- 12,882,284	1.29	1.046	-088	- 4,743,269	33.3	17.1
June 30—							
1871	* 1,945,464	1.32	1.170	-036	- 1,892,884	31.0	20.2
1872	* 8,306,096	1.47	1.314	*.180	* 7,019,236	33.5	24.5
1873	* 4,525,019	1.31	1.143	*.009	* 458,105	33.2	19.2
1874	* 3,843,437	1.43	1.276	*.142	* 12,994,477	28.7	14.1
1875	- 6,489,261	1.12	.994	-140	- 10,207,794	24.1	11.4
1876	- 2,840,526	1.24	1.088	-046	- 3,438,531	16.5	9.6
1877	* 10,267,908	1.17	1.084	*.050	* 2,852,197	20.3	11.2
1878	* 17,493,628	1.34	1.306	*.172	* 15,836,337	17.7	9.2
1879	- 24,663,264	1.07	.....	-064	- 9,451,790	17.3	11.6
1880	* 45,616,958	1.25	.....	*.116	* 20,915,285	19.9	12.3
1881	* 28,507,192	1.11	.....	-024	- 7,471,716	14.4	8.2
1882	* 47,904,102	1.19	.....	*.056	* 6,826,030	14.6	7.9
1883	* 4,877,773	1.13	.....	-004	- 591,245	16.5	8.4
1884	* 14,834,046	1.07	.....	-064	- 7,138,188	13.1	6.3
1885	- 15,510,733	.86	.....	-274	- 36,324,280	14.0	5.9
1886	* 283,698	.87	.....	-264	- 24,965,394	16.5	8.7
1887	* 10,304,933	.89	.....	-244	- 37,528,412	16.3	8.5
1888	- 6,818,588	.85	.....	-284	- 33,973,314	14.5	5.9
1889	* 16,213,936	.90	.....	-134	- 11,872,499	15.0	6.9
1890	- 4,048,927	.83	.....	-304	- 33,266,862	14.3	5.9
1891	* 14,122,115	.93	.....	-204	- 21,660,988	15.0	6.0
1892	* 32,270,211	1.03	.....	-104	- 23,469,244	14.2	5.6
1893	- 12,858,147	.80	.....	-334	- 64,098,820	14.7	6.3
1894	- 29,078,114	.67	.....	-464	- 76,227,372	12.9	4.4
1895	- 24,183,724	.58	.....	-554	- 80,226,246	12.2	4.1
1896	- 26,173,901	.66	.....	-474	- 59,934,441	.....	.....
1863-67	- 13,916,208	.....	.....	.....	- 29,052,065	.....	.....
1868-71	- 321,921	.....	.....	.....	- 4,424,725	.....	.....
1872-75	* 10,185,291	.....	.....	.....	* 10,264,024	.....	.....
1876-79	* 257,746	.....	.....	.....	* 93,819	.....	.....
1880-83	* 126,906,025	.....	.....	.....	* 19,678,354	.....	.....
1884-87	- 10,697,922	.....	.....	.....	-105,956,274	.....	.....
1888-91	* 19,468,536	.....	.....	.....	-100,773,663	.....	.....
1892-95	- 33,849,774	.....	.....	.....	-244,021,682	.....	.....
1863-67	- 13,916,208	.....	.....	.....	- 29,052,065	.....	.....
1868-74	* 16,352,631	.....	.....	.....	* 16,047,093	.....	.....
1875-81	* 67,892,635	.....	.....	.....	* 3,329,594	.....	.....
1882-88	* 35,265,365	.....	.....	.....	-133,694,803	.....	.....
1889-95	- 7,562,650	.....	.....	.....	-310,822,031	.....	.....
1863-95	* 98,031,773	.....	.....	.....	-454,192,212	.....	.....
1868-95	* 111,947,981	.....	.....	.....	-425,140,147	.....	.....

\* The asterisk here signifies plus (+)



## CHAPTER V.

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### CORN, OATS, AND WHEAT IN COMBINATION.

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#### GENERAL RISE OF AVERAGE GOLD PRICES IN THE MISSISSIPPI VALLEY

In Table (a) of this chapter, and upon the graphic plate for this group of the combined three leading agricultural staples of the American farm, the following states, Ohio, Indiana, Illinois, Missouri, Iowa, and Minnesota show a higher average gold farm value in 1891 to 1894 than in 1862 to 1866. Of these it is noted that Iowa shows a decline in the average per bushel but an increase in the average per ton, while Ohio and Indiana exhibit the reverse condition. This difference is due to a greater relative increase in oats in Iowa than of the other and heavier grains. The reverse condition prevails in Ohio and Michigan. Kansas and Nebraska show a decline when comparing the first and last four-year periods, but a very decided gain after 1873. Prices in those states fell from 1862 to 1870, owing to the fact that in that period for most crops they ceased to import grain and began to sell an excess of farm products in the markets of the world. Two states only out of the whole group show a continuous decline of the average gold farm value of a bushel or ton of the combined crop of corn, oats, and wheat. They are Michigan and Wisconsin.

In Table (c) is given the average values for the group of ten states obtained by different methods and also index numbers calculated in different ways. The index numbers there given are here presented for the four-year periods.

TABLE A.

An exhibit of the index numbers for the prices of the combined crop of corn, oats, and wheat in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Kansas, and Nebraska, obtained by four different methods of calculation:

YEARS.	1	2	3	4
1862-66.....	113	111	124	102
1867-70.....	142	136	144	130
1871-74.....	122	118	124	114
1875-78.....	101	101	103	100
1879-82.....	139	135	140	129
1883-86.....	99	102	106	102
1887-90.....	106	109	114	110
1891-94.....	109	109	118	105

The index numbers marked (1) correspond to the simple average gold values for the group, and are obtained by dividing the value for any given year or period by the corresponding value for 1872. The numbers marked (2) are obtained from the corrected average values of this report in the same manner as those marked (1) are obtained from the simple average values. Numbers marked (3) are obtained by adding the simple index numbers for corn, oats, and wheat for the several states and dividing the result by thirty. The numbers marked (4) are obtained by dividing the gold values of the period by what they would have been had the prices of 1872 prevailed. The fourth series of numbers are designated in the tables as those calculated according to relative importance by Sauerbeck's method.

The index numbers calculated for corn, oats, and wheat in these ten states show a slight decline in three cases and a slight advance in the fourth and last one. In the introductory chapter attention was called to the limitation of index numbers and all methods of securing grand averages of a large number of objects in a price investigation. These four methods whose results are given in the foregoing table all agree in showing how much prices were temporarily enhanced from 1867 to 1871 and also from 1879 to 1882 from the causes explained at length under corn and wheat. These four sets of index numbers further agree in that they exhibit no trace of any general price decline dating with 1873. They close with the period 1891 to 1894 with a record of a material advance over 1872. The full tables show a decline after 1893, a decline for 1895 of from twenty to thirty per cent, but no trace of a general

decline before 1893. All these index numbers show an advance from 1873 to 1881 and a subsequent fall, but down to 1893 that fall had not reached the limit of 1872.

The index numbers according to relative importance show a gain of three per cent from 1891 to 1894 over 1862 to 1866. The index numbers for corrected values calculated by the method first adopted in this report show a decline of two per cent. The commissioner in charge, when he considers that only two states out of the ten show a general decline for the whole thirty-three years, is inclined to believe that these numbers, marked in Table A as (4), best express the price movement of these three grains in the great Mississippi Valley. They lead to the conclusion that in that valley there has been a slight and yet none the less distinct upward trend of average prices for farm products in thirty-three years.

#### DECLINE IN AVERAGE VALUES IN THE SEABOARD STATES.

TABLE B.

An exhibit of the index numbers for the prices of the combined crops of corn, oats, and wheat in the seven states of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, obtained by four different methods of calculation:

YEARS.	1	2	3	4
1862-66.....	103	109	107	100
1867-70.....	116	119	111	117
1871-74.....	111	114	108	110
1875-78.....	95	94	90	93
1879-82.....	110	109	102	108
1883-86.....	89	91	85	91
1887-90.....	86	89	83	89
1891-94.....	85	87	80	85

These index numbers have been calculated by the same methods as explained in Table A. They show the effect of changed freight rates in reducing the seaboard values of all farm products and the special effect of new processes of milling upon the winter wheat prices of these same states. The fall of prices in the several states in this group can be noted in Table (d).



## NO GENERAL FALL IN NATIONAL PRICES SINCE 1873,

TABLE C.

An exhibit of the index numbers of the gold farm values for the combined crops of corn, oats, and wheat in the seventeen states given in Tables A and B, obtained by four different methods of calculation:

YEARS.	1	2	3	4
1862-66.....	109	111	117	102
1867-70.....	135	131	130	125
1871-74.....	119	116	117	113
1875-78.....	98	99	97	98
1879-82.....	127	126	124	121
1883-86.....	94	98	97	91
1887-90.....	97	102	101	103
1891-94.....	99	102	102	99

In two of these sets of index numbers the period 1891 to 1894 exhibits a decline of one point from the price of 1872. The other index numbers show an advance of two per cent from that price. All show a decline from 1867 to 1872, after which the general level remains unbroken save for the exception of the period of high prices from 1879 to 1882. These figures are for the large group of seventeen states that raise about eighty per cent of the corn, oats, and wheat of the United States. They reflect fairly well the price movement of farm staples for the nation. They show that in spite of all disturbing factors, changing railway rates, milling inventions, and the like, prices in the United States are fairly stable. There have been temporary fluctuations. They rose from 1860 to 1867, then fell to 1872. They rose from 1879 to 1882 and fell and remained on a level until the panic of 1893, when they received a tumble. Prices in 1895 are about the same, however, for the whole country as in 1862, 1865, and 1869. They did not fall below the level of 1872 until after the panic of 1893.

## IOWA AND ILLINOIS FARM PRICES.

Attention has been called to the average values in large groups of states and in the nation as a whole. Those values, however calculated, include ordinarily the effect of all the forces operating in a nation to modify and change prices. They include the effect of changing railway rates and all kindred influences. The importance of the subject and its relation to the financial policy of this and other nations requires the elimination of these factors so far as

possible, that we may discern the real effect of the changing supply of precious metals upon prices. The central states of the Mississippi valley best exhibit the price movement when unaffected by the influence of these modern factors of price change on agricultural staples. The corrected average gold farm values for these two states and the index numbers are herewith presented.

TABLE D.

An exhibit of the corrected averages gold home values per ton and the index numbers for the same of the combined corn, oat, and wheat crops of Iowa and Illinois :

YEARS.	ILLINOIS.		IOWA.	
	Value.	Index Numbers.	Value.	Index Numbers.
1862-66.....	\$12.72	110	\$11.35	136
1867-70.....	16.67	144	14.09	168
1871-74.....	14.35	124	11.65	139
1875-78.....	12.99	112	10.28	123
1879-82.....	17.72	153	14.17	170
1883-86.....	13.69	118	11.52	138
1887-90.....	14.02	121	12.24	146
1891-94.....	14.62	126	13.03	156

For the four years 1891 to 1894 Illinois had an average value for these three crops of twenty-six per cent above that of 1872 and Iowa had one of fifty-six per cent above. Illinois shows an advance of fifteen per cent and Iowa of the same when comparing 1862 to 1866 with 1891 to 1894. These percentages represent the real movement of prices in the center of the American continent where least affected by local temporary causes. They show the trend of prices where changing railroad rates exert the least influence. In all the groups for the various crops there has been calculated the amount of local price variation due to local and transient causes. That variation has been subtracted from the average, and the result was assumed to show the trend of prices in the several groups apart from the influence of these local causes. In Tables (c), (f), and (h) are found the results of these calculations for the groups of ten, seven, and seventeen states. The index numbers for the calculations show an advance in price movement in every case, as may be noted in the following summary:

TABLE E.

An exhibit of the index numbers showing for the groups of ten, seven and seventeen states the price movement after eliminating the influences of changing railway rates and other local causes affecting prices:

YEARS.	TEN STATES.	SEVEN STATES.	SEVENTEEN STATES.
1862-66 .....	126	116	123
1867-73 .....	148	129	142
1871-74 .....	128	118	125
1875-78 .....	112	110	111
1879-82 .....	159	135	152
1883-86 .....	121	115	119
1887-90 .....	134	121	130
1891-94 .....	139	124	134

The advance here indicated is only about one-half as great as for Iowa and Illinois. This is what should be anticipated when a balance is struck between the decline in the East and the greater advance in the West.

#### THE PER CAPITA PRODUCT AND ITS VALUES.

In preceding chapters mention has been made of the decreased average yield per acre of most crops to be noted in the reports of the department of agriculture. This decrease is to be seen in Table (j), giving that yield from 1862 to 1895 inclusive. Table (k) gives the per capita product of the three crops and its value. To show the true relation of these crops to the national population a correction should be made as in Chapters II. and III. to allow for the changed reported yield per acre. This correction is made in the following table:

TABLE F.

An exhibit by seven-year periods of the average yield per acre of the combined crops of corn, oats, and wheat, the per capita product of the same in tons and its value in dollars, as shown in Table (k) and as the same appears when corrected, to allow for changed reported average yield per acre:

YEARS.	Average Yield Per Acre in Tons.	PER CAPITA PRODUCT.			
		As Given in Table.		Corrected.	
		Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73 . . . . .	588	.985	\$20.98	.926	\$19.72
1874-80 . . . . .	589	1.181	21.31	1.110	20.03
1881-87 . . . . .	524	1.223	22.21	1.284	23.32
- 81-87 . . . . .	537	1.144	18.79	1.198	19.35
1867-94 .....	552	1.143	.....	.....	.....



The corrected and uncorrected figures show an increase in the per capita product in tons. The corrected figures show an increase of twenty-nine per cent in twenty-eight years. This is an enormous increase for three such important staples. The value of that per capita product decreased by a small amount, due mainly to the fact that the increased product was in the sections with a lower average price.

TABLE V. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the combined product in bushels and tons of the corn, oat, and wheat crops of the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total home or farm value of the same in currency, and its simple and corrected average home or farm values per bushel and ton in gold and currency, and index numbers showing the percentage which the corrected gold values each year or period of years was of the corresponding gold values in the same states for the year 1872.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE VALUE, IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862-66.	577,607,081	15,446,094	426,975,842	.466	27.64	17.41	18.11	97
1867-70.	467,664,000	12,055,516	347,085,820	.586	28.79	22.74	23.70	127
1871-74.	539,925,000	14,165,944	296,372,390	.493	20.92	18.79	20.23	108
1875-78.	623,612,200	16,342,700	296,007,291	.451	18.12	17.21	18.38	98
1879-82.	661,706,215	17,728,743	418,432,133	.632	.....	23.61	22.80	122
1883-86.	617,346,000	16,074,150	280,347,110	.454	.....	17.44	17.33	93
1887-90.	573,629,000	14,878,078	275,142,935	.480	.....	18.49	18.00	96
1891-94.	596,586,099	15,711,046	280,948,100	.469	.....	17.82	17.13	92
1862-66.	577,607,081	15,446,094	426,975,842	.466	27.64	17.41	18.11	97
1867-73.	875,837,000	22,688,782	556,655,400	.530	24.54	20.44	21.90	117
1874-80.	1,118,588,615	29,604,151	584,381,050	.501	19.74	18.95	19.47	104
1881-87.	1,055,597,800	27,698,854	569,273,464	.529	.....	20.55	20.11	108
1888-94.	1,030,425,099	26,964,390	483,215,805	.469	.....	17.92	17.23	92
1862-94.	4,658,075,595	122,402,271	2,620,501,621	.505	21.41	19.19	19.19	103
1876-78.	487,362,200	12,777,700	226,671,291	.453	17.75	17.31	18.30	98
1893-95.	436,604,357	11,410,873	171,158,803	.392	.....	15.00	14.50	78
1862....	113,519,490	3,108,967	64,760,108	.393	20.83	14.35	13.36	71
1872....	145,043,000	3,767,742	67,599,410	.413	17.94	15.91	18.69	100
1895....	156,403,258	4,066,868	51,289,795	.328	.....	12.61	12.53	67

## INDIANA.

1862-66.	585,394,804	16,142,743	370,034,187	.398	22.92	14.44	15.89	99
1867-70.	479,306,000	13,012,142	316,703,330	.522	24.34	19.23	20.33	126
1871-74.	437,836,000	11,850,172	232,338,520	.477	19.61	17.61	17.90	111
1875-78.	584,775,200	15,825,651	249,128,940	.405	15.74	14.95	15.83	98
1879-82.	655,847,106	17,932,660	388,381,417	.592	.....	21.66	20.49	127
1883-86.	682,294,900	18,138,206	279,921,652	.410	.....	15.43	15.45	96
1887-90.	629,963,000	16,691,624	278,482,597	.442	.....	16.68	16.25	101
1891-94.	609,238,837	18,505,196	301,144,467	.431	.....	16.27	15.66	97
1862-66.	585,394,804	16,142,743	370,034,187	.398	22.92	14.44	15.89	99
1867-73.	807,559,000	21,886,864	483,936,150	.499	22.11	18.42	19.33	120
1874-80.	1,051,724,006	28,637,426	500,321,623	.465	17.79	17.08	17.17	106
1881-87.	1,117,947,200	29,815,670	540,685,716	.484	.....	18.13	17.72	110
1888-94.	1,192,030,837	31,615,691	512,157,434	.430	.....	16.20	15.69	97
1862-94.	4,754,655,847	128,098,394	2,416,135,110	.449	18.86	16.68	16.68	103
1876-78.	454,495,200	12,359,251	189,377,340	.407	15.82	14.94	15.68	97
1893-95.	497,007,692	12,989,690	169,920,540	.342	.....	13.08	12.79	79
1862....	118,176,369	3,289,178	46,142,947	.269	14.03	9.67	10.35	64
1872....	118,002,000	3,185,858	53,659,810	.357	16.84	14.94	16.13	100
1895....	167,625,855	4,423,367	44,677,206	.267	.....	10.10	10.91	68

TABLE V. (a)—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE VALUE, IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862....	188,461,835	5,126,652	61,598,299	.225	12.02	8.28		
1863....	134,103,264	3,581,551	95,479,608	.458	26.68	17.14		
1864....	196,001,059	5,263,487	170,299,407	.402	32.35	14.98		
1865....	230,450,794	6,166,096	86,083,435	.267	13.96	9.97		
1866....	214,450,141	5,701,055	132,035,255	.458	23.16	17.21		
1867....	169,249,000	4,409,078	145,199,300	.619	32.93	23.78		
1868....	195,402,000	5,138,628	104,714,900	.395	20.38	15.02		
1869....	186,426,000	4,849,616	104,665,620	.463	21.58	17.78		
1870....	266,995,000	7,068,066	108,291,040	.367	15.32	13.83		
1871....	267,109,000	7,067,460	105,620,560	.367	14.94	13.70		
1872....	285,461,000	7,524,866	90,818,430	.283	12.07	10.71		
1873....	207,411,000	5,440,022	87,122,380	.377	16.02	14.37		
1874....	195,525,000	5,153,056	115,029,960	.523	22.32	19.84		
1875....	332,300,000	9,859,000	141,043,000	.327	14.31	12.68		
1876....	294,440,000	7,715,200	103,400,200	.330	13.40	12.61		
1877....	352,200,000	9,217,200	122,744,000	.343	13.32	13.12		
1878....	313,847,490	8,175,433	90,331,237	.288		11.05		
1879....	404,788,230	10,851,819	157,699,126	.390		14.53		
1880....	364,358,163	9,568,588	162,728,350	.447		17.01		
1881....	269,649,000	6,810,688	163,648,400	.607		24.03		
1882....	333,780,800	8,260,776	162,403,957	.487		19.66		
1883....	328,716,500	8,015,002	129,643,200	.394		16.18		
1884....	375,071,000	9,388,900	118,779,450	.317		12.65		
1885....	387,649,000	9,579,922	109,884,990	.283		11.47		
1886....	341,029,000	8,360,148	111,010,100	.325		13.28		
1887....	286,807,000	6,797,926	113,039,320	.394		16.63		
1888....	449,016,000	10,990,760	143,446,480	.319		13.05		
1889....	442,503,000	10,721,744	116,418,937	.263		10.86		
1890....	276,428,000	6,926,454	125,438,697	.454		18.11		
1891....	381,000,000	9,404,910	147,783,414	.387		15.71		
1892....	268,760,000	6,681,264	102,313,863	.381		15.31		
1893....	259,899,961	6,302,107	80,316,764	.309		12.74		
1894....	311,484,163	7,479,578	112,572,536	.361		15.05		
1895....	347,904,396	8,894,959	78,762,431	.226		8.85		
1862-66.	963,467,093	25,838,821	545,496,004	.355	21.11	13.25	12.72	110
1867-70.	818,072,000	21,465,386	462,870,860	.447	21.56	17.05	16.67	144
1871-74.	955,506,000	25,185,404	398,591,330	.374	15.83	14.21	14.35	124
1875-78.	1,342,787,490	34,966,833	457,527,437	.323	13.08	12.40	12.99	112
1879-82.	1,372,576,193	35,491,871	646,479,833	.471		18.21	17.72	153
1883-86.	1,432,465,500	35,343,972	469,317,740	.328		13.28	13.69	118
1887-90.	1,454,754,000	35,436,884	498,343,434	.343		14.06	14.02	121
1891-94.	1,221,144,124	29,867,859	442,986,577	.363		14.83	14.62	126
1862-66.	963,467,093	25,838,821	545,496,004	.355	21.11	13.25	12.72	110
1867-73.	1,578,053,000	41,497,734	746,432,230	.394	17.99	14.99	14.90	129
1874-80.	2,307,458,883	60,540,296	892,984,873	.371	14.75	14.14	14.33	124
1881-87.	2,322,702,300	57,213,362	908,409,417	.391		15.88	15.89	137
1888-94.	2,389,091,124	58,506,817	828,290,691	.347		14.16	14.13	122
1862-94.	9,560,772,400	243,597,030	3,921,613,215	.372	16.10	14.60	14.60	126
1876-78.	960,487,490	25,107,833	316,484,437	.....	12.51	12.20	12.79	110
1893-95.	919,288,520	22,676,644	271,651,731	.295	.....	11.98	11.94	103
1862....	188,461,835	5,126,651	61,598,299	.225	12.02	8.28	7.92	68
1872....	285,461,000	7,524,866	90,818,430	.283	12.07	10.71	11.58	100
1895....	347,904,396	8,894,958	78,762,431	.226		8.85	9.47	82



TABLE V. (a).—Continued.

## MICHIGAN.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE VALUE IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66.	175,807,126	4,695,738	192,512,984	.690	41.00	25.83	25.67	96
1867-70.	164,556,000	4,324,612	161,816,340	.777	37.42	29.56	29.20	109
1871-74.	157,844,000	4,108,697	125,523,560	.714	30.55	27.43	26.99	101
1875-78.	231,866,200	6,018,701	151,606,757	.621	25.19	23.93	24.46	91
1879-82.	300,239,956	7,852,891	209,256,804	.697	.....	26.65	26.56	99
1883-86.	298,752,600	7,625,969	159,399,791	.534	.....	20.90	20.65	77
1887-90.	291,766,000	7,091,040	153,559,590	.526	.....	20.48	21.91	82
1891-94.	297,806,461	7,258,656	146,798,619	.493	.....	20.22	20.18	75
1862-66.	175,807,126	4,695,738	192,512,984	.690	41.00	25.83	25.67	96
1867-73.	283,936,000	7,422,842	256,146,770	.....	34.51	28.75	28.47	106
1874-80.	427,090,586	11,193,093	288,737,726	.....	25.80	24.77	24.11	90
1881-87.	505,478,170	12,857,438	295,088,516	.584	.....	22.95	22.76	85
1888-94.	526,526,461	12,807,193	267,988,449	.509	.....	20.92	21.46	80
1862-94.	1,918,638,343	48,976,304	1,300,474,445	.610	26.55	23.94	23.94	89
1876-78.	179,896,200	4,667,801	112,865,257	.611	24.18	23.58	23.85	89
1893-95.	185,570,800	4,811,194	116,618,657	.628	.....	24.24	17.49	65
1862....	35,584,669	961,129	23,027,140	.446	23.96	16.51	16.20	61
1872....	40,171,000	1,041,684	30,610,330	.654	29.39	26.06	26.85	100
1895....	72,103,237	1,770,185	25,245,753	.350	.....	14.26	15.56	58

## WISCONSIN.

1862-66.	223,053,775	5,531,646	178,742,768	.505	32.31	20.36	19.02	95
1867-70.	217,278,000	5,347,818	164,652,920	.599	30.79	24.32	22.75	114
1871-74.	225,377,000	5,695,534	142,510,220	.568	25.02	22.47	21.20	106
1875-78.	305,532,400	7,374,280	143,049,548	.445	19.40	18.43	18.22	91
1879-82.	344,361,565	8,225,785	187,675,739	.545	.....	22.82	23.75	119
1883-86.	354,976,900	7,992,989	140,231,383	.395	.....	17.54	18.04	90
1887-90.	346,174,000	7,775,906	137,259,113	.397	.....	17.65	18.88	95
1891-94.	346,671,448	7,332,931	125,258,311	.361	.....	17.08	17.73	89
1862-66.	223,053,775	5,531,646	178,742,768	.505	32.31	20.36	19.02	95
1867-73.	394,392,000	9,827,136	275,407,200	.581	28.03	23.35	21.71	109
1874-80.	530,254,565	12,819,089	263,931,981	.478	20.59	19.77	19.79	99
1881-87.	596,572,300	13,661,449	267,625,849	.449	.....	19.59	20.15	101
1888-94.	619,152,448	13,437,569	233,672,204	.377	.....	17.39	18.45	92
1862-94.	2,363,425,088	55,276,889	1,219,380,002	.465	22.06	19.80	19.89	100
1876-78.	238,532,400	5,767,080	103,131,548	.421	17.88	17.43	17.81	89
1893-95.	272,559,434	5,674,111	82,552,421	.303	.....	14.55	14.92	75
1862....	44,123,958	1,117,748	24,744,312	.387	22.14	15.25	13.88	70
1872....	60,033,000	1,526,986	36,742,930	.542	24.09	21.37	19.96	100
1895....	104,729,984	2,193,429	25,665,968	.245	.....	11.70	12.92	65

TABLE V. (a).—Continued.

## MISSOURI.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE VALUE IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66.	294,782,655	8,112,726	165,518,608	.353	20.40	12.85	14.01	100
1867-70.	332,330,000	9,103,960	196,887,220	.468	21.63	17.09	17.93	128
1871-74.	417,509,000	11,070,104	192,879,740	.415	17.42	15.64	15.36	110
1875-78.	566,892,400	15,121,371	191,027,264	.320	12.63	12.00	11.68	84
1879-82.	763,411,066	20,460,915	352,352,971	.462	.....	17.22	16.54	118
1883-86.	904,692,500	24,060,104	292,621,624	.323	.....	12.16	12.26	88
1887-90.	957,900,000	25,362,254	336,596,633	.351	.....	13.27	13.41	96
1891-94.	825,252,014	22,011,838	308,208,232	.373	.....	14.00	13.94	100
1862-66.	294,782,655	8,112,726	165,518,608	.353	20.40	12.85	14.01	100
1867-73.	675,086,000	18,210,038	336,661,220	.416	18.49	15.40	15.98	114
1874-80.	1,041,156,366	27,895,512	402,118,205	.371	14.42	13.84	14.05	101
1881-87.	1,477,078,600	39,126,484	566,687,984	.384	.....	14.48	14.31	102
1888-94.	1,574,666,014	41,958,512	565,106,275	.359	.....	13.47	13.56	97
1862-94.	5,062,769,635	135,303,272	2,036,092,292	.376	15.05	14.08	14.08	101
1876-78.	407,232,400	10,874,571	139,050,264	.332	12.79	12.47	11.77	84
1893-95.	654,445,929	17,418,494	188,428,639	.288	.....	10.82	10.89	78
1862....	92,721,100	2,552,251	27,028,254	.201	10.59	7.29	8.08	58
1872....	130,286,000	3,461,198	48,562,570	.331	14.03	12.44	13.97	100
1895....	287,119,915	7,709,785	62,548,020	.218	.....	8.11	8.58	61

## KANSAS.

1862-66.	35,096,562	976,358	20,852,458	.374	21.36	13.46	16.72	126
1867-70.	69,432,000	1,891,904	42,255,440	.481	22.33	17.64	18.48	139
1871-74.	163,370,000	4,285,463	70,212,450	.386	16.39	14.72	15.27	115
1875-78.	460,969,400	12,447,137	136,835,856	.282	10.99	10.44	10.51	79
1879-82.	548,483,180	15,031,106	238,155,565	.434	.....	15.84	15.96	120
1883-86.	821,637,000	21,889,344	231,076,092	.281	.....	10.56	11.13	84
1887-90.	764,677,000	19,758,388	236,833,280	.310	.....	11.99	12.33	93
1891-94.	789,363,339	20,837,190	294,184,681	.373	.....	14.11	13.37	101
1862-66.	35,096,562	976,358	20,852,458	.374	21.36	13.46	16.72	126
1867-73.	199,435,000	5,316,346	85,747,630	.358	16.13	13.44	15.01	113
1874-80.	749,298,180	20,274,769	254,789,109	.326	12.57	12.07	12.09	91
1881-87.	1,239,353,400	32,964,022	422,573,184	.341	.....	12.82	13.24	100
1888-94.	1,429,845,839	37,583,395	486,443,441	.340	.....	12.94	12.45	94
1862-94.	3,653,028,981	97,114,890	1,270,405,822	.340	13.08	12.78	12.78	96
1876-78.	362,039,400	9,766,057	105,858,656	.285	10.84	10.57	10.47	79
1893-95.	552,478,143	14,712,636	179,215,349	.324	.....	12.18	12.24	92
1862....	7,113,725	198,426	2,360,361	.229	11.90	8.20	9.88	74
1872....	37,870,000	991,662	10,917,400	.256	11.01	9.77	13.29	100
1895....	257,755,304	6,902,076	76,854,648	.298	.....	11.14	11.42	86

TABLE V. (a).—Continued.

## IOWA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE VALUE IN DOLLARS.			Corrected Average Values, Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862....	66,937,482	1,810,664	18,200,542	.187	10.05	6.92		
1863....	54,949,224	1,470,744	26,456,008	.309	17.98	11.56		
1864....	77,224,416	2,075,824	59,320,490	.369	28.57	13.21		
1865....	88,703,735	2,367,014	35,748,066	.287	15.10	10.78		
1866....	80,649,256	2,138,393	50,293,541	.463	23.51	17.48		
1867....	85,883,000	2,242,324	52,610,200	.499	16.94	12.23		
1868....	101,232,000	2,687,896	58,120,000	.356	22.32	16.45		
1869....	121,000,000	3,207,000	48,917,840	.344	15.25	12.56		
1870....	130,200,000	3,490,410	59,467,150	.365	17.03	15.38		
1871....	137,353,000	3,643,476	44,624,610	.290	12.25	11.23		
1872....	144,003,000	3,837,036	40,315,460	.248	10.50	9.31		
1873....	160,930,000	4,321,680	65,651,160	.366	15.21	13.62		
1874....	169,278,000	4,571,800	79,266,800	.416	17.33	15.41		
1875....	217,800,000	5,822,000	71,078,000	.289	12.21	10.81		
1876....	181,350,000	4,858,000	53,352,500	.293	10.99	10.34		
1877....	235,810,000	6,174,300	79,294,700	.335	12.84	12.64		
1878....	244,030,160	6,433,733	48,244,768	.197		7.49		
1879....	255,232,480	6,765,006	83,198,310	.325		12.29		
1880....	343,293,445	9,079,504	106,338,418	.313		11.71		
1881....	233,971,000	6,078,476	109,997,600	.407		18.09		
1882....	253,592,960	6,520,159	99,309,413	.391		15.23		
1883....	265,551,400	6,669,634	97,171,520	.366		14.51		
1884....	362,520,000	9,269,300	94,959,440	.262		10.24		
1885....	347,546,000	8,895,336	91,026,500	.233		10.23		
1886....	309,756,000	7,796,630	94,081,256	.303		12.06		
1887....	284,721,000	7,133,278	98,447,950	.346		13.80		
1888....	369,518,000	9,589,816	100,760,280	.272		10.51		
1889....	470,448,000	12,021,082	95,651,781	.203		7.78		
1890....	522,877,000	8,221,874	137,665,190	.426		16.74		
1891....	481,041,000	12,293,896	154,278,427	.321		12.55		
1892....	303,319,000	7,357,354	93,343,471	.308		12.69		
1893....	354,029,605	8,780,949	93,254,894	.263		10.60		
1894....	188,638,082	4,144,662	69,009,373	.365		10.65		
1895....	495,124,766	11,695,194	85,627,102	.177		7.32		
1862-66.	368,464,113	9,862,639	190,018,647	.324	19.27	12.16	11.35	136
1867-70.	438,315,000	11,627,630	219,115,190	.402	18.84	11.04	14.09	168
1871-74.	611,564,000	16,373,992	229,857,970	.336	14.04	12.58	11.65	139
1875-78.	878,990,160	23,288,033	251,969,968	.277	10.86	10.45	10.28	123
1879-82.	1,086,089,885	28,443,145	398,843,741	.367		14.02	14.17	170
1883-86.	1,285,373,400	32,630,900	377,238,716	.301		11.56	11.52	138
1887-90.	1,447,564,000	36,966,050	432,525,201	.293		11.70	12.24	146
1891-94.	1,327,027,687	32,576,361	409,886,165	.308		12.58	13.03	156
1862-66.	368,464,113	9,862,639	190,018,647	.324	19.27	12.16	11.35	136
1867-73.	880,601,000	23,429,822	369,706,360	.352	15.78	13.23	12.25	146
1874-80.	1,646,794,085	43,704,343	520,773,496	.306	11.94	11.29	11.20	134
1881-87.	2,057,638,360	52,362,813	684,093,679	.333		13.08	13.07	156
1888-94.	2,489,870,687	62,400,133	743,963,416	.299		11.92	12.57	150
1862-94.	7,443,388,245	191,768,750	2,509,455,598	.317	13.09	12.37	12.37	148
1876-78.	661,190,160	17,466,033	181,891,968	.....	10.41	10.15	9.75	116
1893-95.	1,037,792,453	24,620,805	247,891,369	.239	.....	10.07	10.22	122
1862....	66,937,482	1,810,666	18,200,542	.....	10.05	.....	6.59	79
1872....	144,003,000	3,837,036	40,315,460	.173	.....	7.32	7.76	93
1895....	495,124,766	11,695,195	85,627,102	.248	10.50	9.31	8.37	100



TABLE V. (a).—Continued.

## MINNESOTA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE VALUE IN DOLLARS.			Corrected Average Values, Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66.	39,224,609	993,904	24,862,353	.399	25.01	15.76	16.41	87
1867-70.	118,570,000	3,022,364	84,123,030	.560	27.83	21.99	22.06	116
1871-74.	157,064,000	4,068,088	96,274,890	.550	23.67	21.26	20.54	108
1875-78.	210,487,246	5,383,235	116,687,555	.526	21.68	20.60	20.07	106
1879-82.	301,752,791	7,628,623	187,501,056	.621	.....	24.58	24.23	128
1883-86.	375,138,500	9,058,403	160,375,954	.428	.....	17.70	17.79	94
1887-90.	404,950,000	9,526,112	183,280,741	.453	.....	19.24	20.64	109
1891-94.	442,815,311	10,472,685	188,806,033	.426	.....	18.03	18.18	96
1862-66.	39,224,609	993,904	24,862,353	.399	25.01	15.76	16.41	87
1867-73.	235,613,000	6,060,808	156,712,440	.554	25.86	21.54	21.36	113
1874-80.	392,188,937	10,066,039	225,357,181	.552	22.39	21.49	20.87	110
1881-87.	630,226,600	15,279,280	301,564,604	.479	.....	19.74	19.83	105
1888-94.	752,749,311	17,753,383	333,415,034	.443	.....	18.78	19.07	101
1862-94.	2,050,002,457	50,153,414	1,041,911,612	.488	20.77	19.93	19.93	105
1876-78.	162,947,246	4,153,715	86,052,755	.514	20.72	20.20	19.95	105
1893-95.	384,442,140	8,987,434	123,861,366	.322	.....	13.78	13.95	74
1862....	9,845,242	246,312	4,063,001	.422	16.50	11.37	12.13	64
1872....	40,647,000	1,071,008	24,591,020	.536	22.96	20.37	18.94	100
1895....	179,535,929	4,222,233	46,967,678	.262	.....	11.12	11.43	60

## NEBRASKA.

1862-66.	7,515,271	199,416	5,541,989	.442	27.79	16.67	17.81	212
1867-70.	24,806,000	660,754	12,521,450	.399	18.95	14.97	14.46	172
1871-74.	44,146,000	1,172,428	18,359,540	.374	15.66	14.06	12.06	144
1875-78.	193,169,400	5,226,775	46,585,056	.229	8.91	8.46	8.46	101
1879-82.	349,302,767	9,562,631	131,989,562	.378	.....	13.80	13.43	160
1883-86.	641,384,200	17,072,520	159,934,106	.249	.....	9.37	9.13	109
1887-90.	609,411,000	15,942,800	176,418,771	.289	.....	11.07	11.25	134
1891-94.	684,590,193	17,649,318	200,066,011	.292	.....	11.34	11.57	138
1862-66.	7,515,271	199,416	5,541,989	.442	27.79	16.67	17.81	212
1867-73.	59,889,000	1,595,508	25,182,590	.350	15.78	13.14	12.18	145
1874-80.	361,710,367	9,844,427	103,457,822	.275	10.51	10.09	9.90	118
1881-87.	966,309,000	25,766,762	282,811,002	.293	.....	10.98	10.72	128
1888-94.	1,158,901,193	30,080,529	334,423,082	.289	.....	11.15	11.43	136
1862-94.	2,554,324,831	67,486,642	751,416,485	.290	11.13	11.00	11.00	131
1876-78.	157,394,400	4,260,775	37,846,556	.234	8.88	8.66	8.47	101
1893-95.	414,696,982	10,676,203	104,470,433	.252	.....	9.79	9.86	118
1862....	.....	.....	.....	.....	.....	.....	*8.58	102
1872....	11,816,000	315,964	3,629,540	.272	11.49	10.19	8.39	100
1895....	180,383,789	4,601,379	34,125,759	.189	.....	7.42	7.60	91

\* Estimated.

TABLE V. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the combined acreage of the corn, oat, and wheat crops of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of said crops in bushels and tons, and the total gold and currency values of the same, and its average home or farm value per ton and bushel in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value in		
		Bushels.	Tons.	Currency.	Gold.	Cents Per Bushel.		Dollars Per Ton in Gold.
						Currency	Gold.	
1862.	23,883,097	676,488,870	18,411,330	271,924,964	187,356,300.	402.	276	10.18
1863.	25,105,542	506,283,261	13,611,467	361,686,728	232,564,566.	741.	459	17.08
1864.	25,615,693	603,442,650	16,234,107	602,562,178	278,986,288.	998.	444	17.18
1865.	26,241,633	760,330,534	20,324,339	383,816,252	274,044,804.	505.	360	13.48
1866.	28,328,175	723,867,774	19,218,841	500,565,718	371,920,328.	692.	513	19.35
1867.	29,866,043	653,408,000	17,089,496	601,621,430	434,370,672.	921.	665	25.41
1868.	29,456,007	741,085,000	19,570,150	477,287,920	351,761,197.	644.	474	17.97
1869.	33,400,321	794,239,000	20,803,224	477,527,340	393,482,528.	601.	495	18.91
1870.	35,036,190	941,597,000	25,049,216	451,594,910	407,790,204.	480.	433	16.27
1871.	32,660,672	929,123,000	24,535,256	429,689,110	394,024,914.	462.	424	16.06
1872.	34,998,301	1,013,332,000	26,724,004	407,446,900	361,405,400.	402.	356	13.52
1873.	40,589,384	917,637,000	24,164,531	447,520,380	401,425,780.	488.	437	16.61
1874.	44,541,854	850,049,000	22,550,032	518,264,220	460,736,892.	510.	542	20.43
1875.	49,457,225	1,327,505,000	34,783,900	542,284,600	480,464,156.	396.	361	13.81
1876.	52,655,248	1,194,185,000	31,595,753	472,594,120	444,711,068.	403.	372	14.07
1877.	51,851,584	1,393,954,346	36,589,170	561,678,254	553,253,080.	403.	397	15.12
1878.	56,706,500	1,483,437,750	39,025,893	464,958,698	464,958,698.	313.	313	11.91
1879.	58,322,900	1,638,584,690	43,801,515	707,692,600	.....	.....	432	16.16
1880.	69,835,438	1,738,448,804	46,230,083	779,360,574	.....	.....	448	16.86
1881.	71,376,200	1,313,151,000	34,127,344	837,042,070	.....	.....	637	24.53
1882.	68,987,587	1,693,586,230	44,199,427	834,973,577	.....	.....	493	18.89
1883.	70,872,468	1,692,611,500	43,190,724	697,599,208	.....	.....	412	16.15
1884.	73,867,316	1,976,179,000	51,125,744	625,543,980	.....	.....	316	12.24
1885.	72,555,647	1,967,625,000	50,309,896	612,294,900	.....	.....	311	12.17
1886.	76,503,251	1,777,646,000	45,260,192	615,026,080	.....	.....	346	13.59
1887.	75,239,677	1,548,225,000	38,535,606	617,253,630	.....	.....	392	16.02
1888.	78,175,455	2,075,765,000	52,778,984	710,694,000	.....	.....	342	13.47
1889.	80,669,335	2,326,522,000	59,138,696	624,888,405	.....	.....	268	10.57
1890.	73,820,799	1,530,276,000	38,975,850	755,606,260	.....	.....	494	19.38
1891.	80,038,145	2,265,043,000	58,039,568	918,741,304	.....	.....	405	15.83
1892.	78,101,742	1,841,413,000	46,640,478	687,731,169	.....	.....	373	14.75
1893.	76,911,985	1,730,538,145	43,678,516	554,239,458	.....	.....	320	12.69
1894.	67,210,813	1,393,501,768	33,864,517	536,675,265	.....	.....	385	15.85
1895.	53,636,517	2,248,686,463	56,479,475	531,764,360	.....	.....	236	9.42
62-66	129,174,140	3,270,413,089	87,800,084	2,120,555,840	1,344,872,286.	649.	411	15.31
67-70	127,758,561	3,130,329,000	82,512,086	2,008,031,600	1,587,404,601.	641.	507	19.23
71-74	152,799,211	3,710,141,000	97,973,826	1,802,920,610	1,617,592,986.	486.	436	16.51
75-78	210,670,557	5,399,082,096	141,994,716	2,041,515,672	1,943,387,002.	378.	360	13.68
79-82	268,522,125	6,383,770,724	168,358,369	3,159,068,821	.....	.....	495	18.76
83-86	293,798,682	7,414,061,500	189,886,556	2,550,464,168	.....	.....	344	13.43
87-90	307,905,266	7,480,718,000	189,429,136	2,708,442,295	.....	.....	362	14.30
91-94	302,262,685	7,230,495,913	182,223,079	2,697,387,196	.....	.....	373	14.80
62-66	129,174,140	3,270,413,089	87,890,084	2,120,555,840	1,344,872,286.	649.	411	15.31
67-73	236,015,918	5,990,421,000	157,935,880	3,292,687,990	2,744,260,695.	550.	458	17.37
74-80	383,370,749	9,626,164,530	254,576,346	4,046,833,066	3,891,177,068.	420.	404	15.28
81-87	509,402,146	11,969,023,730	306,748,933	4,839,733,445	.....	.....	404	15.78
88-94	534,928,274	13,163,058,913	333,116,609	4,788,575,861	.....	.....	364	14.41
62-94	1,792,891,227	44,019,081,322	1,140,177,852	19,088,386,202	17,608,619,355.	433.	400	15.44
67-94	1,663,717,087	40,748,668,233	1,052,377,768	16,967,830,362	16,263,747,069.	417.	399	15.45
67-78	491,228,329	12,239,552,096	322,480,628	5,852,467,882	5,148,384,589.	479.	420	15.96
79-86	562,320,807	13,797,832,224	358,244,925	5,709,532,989	.....	.....	414	15.94
87-94	610,167,951	14,711,283,913	371,652,215	5,405,829,491	.....	.....	367	14.55
67-78	491,228,329	12,239,552,096	322,480,628	5,852,467,882	5,148,384,589.	479.	420	15.96
79-82	268,522,125	6,383,770,724	168,358,369	3,159,068,821	.....	.....	495	18.76
83-94	903,966,633	22,125,345,413	561,538,771	7,956,293,659	.....	.....	359	14.17
67-80	619,386,667	15,616,585,590	412,512,226	7,339,521,056	6,635,437,763.	471.	424	16.08
81-94	1,044,330,420	25,132,082,643	639,865,542	9,628,309,306	.....	.....	383	15.05
76-78	161,213,332	4,071,577,096	107,210,816	1,499,231,072	1,462,922,845.	372.	359	13.64
93-95	227,759,315	5,372,726,346	134,022,508	1,622,679,083	.....	.....	302	12.11

TABLE V. (c).

An exhibit for various years and periods of years, from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the combined crops of Indian corn, oats, and wheat raised in the States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations, explained in the table.

YEARS.	AVERAGE VALUES PER TON OBTAINED BY			INDEX NUMBERS.				
	Simple Division. (1)	Method for Correct- ing Averages Adopted in this Report. (2)	Allowing for Infla- ence of Changing Freight Rates per Ton. (3)	Corresponding to Column			Average of Index Numbers for Ten States.	Accord- ing to Relative Importance. (a)
				(1)	(2)	(3)		
1862-66. ....	\$15.31	\$15.21	\$13.53	113	111	126	124	102
1867-70. ....	19.23	18.65	15.91	142	136	148	144	130
1871-74. ....	16.51	16.09	13.75	122	118	128	124	114
1875-78. ....	13.68	13.80	12.05	101	101	112	103	100
1879-82. ....	18.76	18.40	17.13	139	135	159	140	129
1883-86. ....	13.43	13.95	12.97	99	102	121	106	102
1887-90. ....	14.30	14.84	14.38	106	109	134	114	110
1891-94. ....	14.80	14.92	14.92	109	109	139	118	105
1862-66. ....	15.31	15.21	13.53	113	111	126	124	102
1867-73. ....	17.37	16.88	14.29	128	123	137	127	120
1874-80. ....	15.28	15.16	13.82	113	111	129	114	108
1881-87. ....	15.78	16.03	14.98	117	117	139	120	110
1888-94. ....	14.41	14.74	14.56	107	108	136	115	107
1862-94. ....	15.44	15.44	14.27	114	113	133	118	126
1876-78. ....	13.64	13.31	11.68	101	97	109	101	102
1893-95. ....	12.11	12.18	11.71	90	89	109	98	91
1862. ....	10.18	.....	.....	75	.....	.....	75	65
1872. ....	13.52	13.67	10.74	100	100	100	100	100
1895. ....	9.42	10.37	9.89	70	76	92	77	79

(a) Computed by Sauerbeck's method.



TABLE V. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the combined product in bushels and tons of the corn, oat, and wheat crops of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency and its simple and corrected average home or farm values per bushel and ton in gold and currency, and index numbers showing the percentage which the corrected gold values each year or period were of the corresponding gold values in the same state for the year 1872.

## NEW YORK.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE, IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862....	81,063,823	1,768,204	52,391,113	.458	29.63	20.41		
1863....	81,063,823	1,768,204	72,951,592	.579	40.13	26.52		
1864....	69,272,223	1,532,762	97,220,099	.650	60.16	29.37		
1865....	86,575,821	1,865,134	75,324,876	.621	40.38	28.84		
1866....	89,395,649	1,879,839	92,942,982	.772	49.44	36.73		
1867....	65,750,000	1,401,500	76,400,000	.839	55.00	39.36		
1868....	54,407,000	1,240,390	59,592,960	.807	48.04	35.41		
1869....	60,100,000	1,327,300	50,530,500	.692	38.13	32.12		
1870....	58,205,000	1,292,254	46,972,830	.729	36.27	32.82		
1871....	59,682,000	1,298,954	45,446,550	.696	34.99	32.08		
1872....	57,248,000	1,240,708	38,310,700	.594	30.88	27.39		
1873....	52,287,000	1,147,554	35,505,240	.609	30.94	27.75		
1874....	56,270,000	1,230,258	44,445,510	.702	36.13	32.12		
1875....	61,450,000	1,293,000	37,487,000	.540	28.99	26.69		
1876....	70,775,000	1,520,900	43,863,000	.583	28.84	27.14		
1877....	83,500,000	1,787,600	46,036,000	.543	25.75	25.36		
1878....	84,228,400	1,845,692	39,994,168	.475		21.67		
1879....	73,378,000	1,596,940	44,865,040	.610		28.09		
1880....	80,509,198	1,799,424	48,255,202	.600		26.92		
1881....	69,089,000	1,498,260	48,638,530	.704		32.46		
1882....	73,400,700	1,598,694	47,704,635	.662		25.58		
1883....	67,619,300	1,404,555	38,531,903	.568		27.43		
1884....	76,548,000	1,675,062	38,824,800	.507		23.17		
1885....	71,689,000	1,564,310	37,085,600	.517		23.70		
1886....	73,742,000	1,604,286	35,954,730	.487		22.41		
1887....	66,755,000	1,490,918	33,943,000	.508		22.76		
1888....	72,749,000	1,568,750	38,515,400	.529		24.62		
1889....	65,413,000	1,417,314	29,591,461	.452		20.87		
1890....	50,302,000	1,140,076	32,359,922	.643		28.38		
1891....	74,607,000	1,607,534	41,125,428	.545		25.28		
1892....	64,548,000	1,359,406	32,696,985	.507		24.05		
1893....	52,310,270	1,115,875	22,656,139	.433		20.30		
1894....	50,472,198	1,061,967	24,180,448	.479		22.67		
1895....	70,981,593	1,454,091	25,857,683	.364		17.78		
1862-66.	407,371,339	8,814,143	390,830,662	.658	44.34	30.08	28.11	99
1867-70.	238,462,000	5,261,444	233,496,290	.734	44.38	33.40	34.87	122
1871-74.	225,487,000	4,917,474	163,708,000	.654	33.29	30.00	30.00	105
1875-78.	299,953,400	6,447,192	167,380,168	.516	25.96	24.02	24.91	87
1879-82.	296,376,898	6,493,318	189,463,467	.640		29.17	29.03	102
1883-86.	289,598,300	6,248,213	150,397,033	.519		24.07	24.05	84
1887-90.	255,219,000	5,617,058	134,409,783	.527		23.95	24.03	84
1891-94.	241,937,468	5,144,782	120,659,000	.497		23.45	23.54	83
1862-66.	407,371,339	8,814,143	390,830,662	.658	44.34	30.08	28.11	99
1867-73.	407,679,000	8,948,660	352,758,780	.695	39.42	31.65	32.62	115
1874-80.	510,110,598	11,073,814	304,945,920	.565	27.54	25.09	26.43	93
1881-87.	498,843,000	10,836,085	280,683,258	.562		25.90	25.83	91
1888-94.	430,401,468	9,270,922	221,125,783	.512		23.85	23.65	85
1862-94.	2,254,405,405	48,943,624	1,550,344,403	.593	31.68	27.38	27.38	96
1867-94.	1,847,034,066	40,129,481	1,159,513,741	.577	28.89	27.03		
1876-78.	238,503,400	5,154,192	129,593,168	.531	25.20	24.57	24.38	86
1893-95.	173,764,061	3,631,932	72,694,270	.418		20.02	20.09	71
1862....	81,063,823	1,768,204	52,391,113	.445	29.63		20.21	71
1872....	57,248,000	1,240,708	38,310,700	.594	30.88		27.39	100
1895....	70,981,593	1,454,091	25,857,683	.364			17.78	63

TABLE V. (d).—Continued.

## PENNSYLVANIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE, IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66.	434,825,817	9,815,387	393,794,690	.574	40.12	25.45	25.95	95
1867-70.	392,014,000	8,736,658	347,325,080	.609	39.75	31.35	31.47	115
1871-74.	339,920,000	8,179,700	254,413,460	.673	31.10	27.91	28.13	103
1875-78.	391,498,400	9,360,484	228,792,718	.556	24.44	23.24	25.86	94
1879-82.	403,500,900	9,766,429	269,146,942	.667	.....	27.56	26.30	96
1883-86.	385,685,400	9,200,488	200,227,492	.542	.....	22.74	22.77	83
1887-90.	360,488,060	8,716,396	193,000,624	.535	.....	22.14	22.41	82
1891-94.	355,708,163	8,672,149	190,828,802	.536	.....	22.00	21.78	79
1862-66.	434,825,817	9,815,387	393,794,690	.574	40.12	25.45	25.95	95
1867-73.	652,970,000	15,004,578	539,276,890	.683	35.94	29.74	29.85	109
1874-80.	682,547,700	16,505,663	423,342,770	.595	25.65	24.60	24.49	89
1881-87.	668,812,000	15,947,145	391,776,732	.585	.....	24.57	24.60	90
1888-94.	623,585,223	15,174,918	338,338,726	.543	.....	22.29	22.27	81
1862-94.	3,062,740,740	72,447,691	2,086,529,808	.598	28.80	25.29	25.29	92
1876-78.	300,798,400	7,182,484	170,339,718	.552	23.71	23.12	22.81	83
1893-95.	266,481,584	6,456,427	120,991,266	.454	.....	18.74	18.74	68
1862....	80,610,012	1,877,582	48,968,967	.419	26.08	17.97	17.69	65
1872....	87,112,000	2,083,802	59,319,760	.604	28.47	25.25	27.41	100
1895....	100,505,421	2,416,629	40,131,429	.399	.....	16.60	16.53	60

## KENTUCKY.

1862-66.	189,455,204	5,144,429	123,949,770	.411	24.09	15.14	16.83	105
1867-70.	259,379,000	7,020,346	156,145,580	.477	22.24	17.63	18.42	115
1871-74.	276,739,000	7,513,216	145,158,800	.468	19.32	17.24	16.40	103
1875-78.	285,999,500	7,718,661	118,691,844	.394	15.38	14.58	14.55	91
1879-82.	347,457,322	9,511,832	187,223,254	.539	.....	19.68	19.29	121
1883-86.	403,819,300	10,962,836	169,149,189	.419	.....	15.43	15.49	97
1887-90.	350,635,000	9,532,272	159,661,712	.455	.....	16.75	16.51	103
1891-94.	376,290,284	10,120,339	166,139,738	.442	.....	16.41	17.10	106
1862-66.	189,455,204	5,144,429	123,949,770	.411	24.09	15.14	16.83	105
1867-73.	474,787,000	12,850,748	263,736,080	.460	20.52	17.00	17.67	111
1874-80.	528,066,522	14,358,017	235,316,440	.427	16.39	15.70	15.69	98
1881-87.	648,340,600	17,612,588	319,091,817	.492	.....	18.12	17.90	112
1888-94.	649,125,284	17,558,149	284,025,780	.438	.....	16.18	15.94	100
1862-94.	2,489,774,610	67,523,931	1,226,119,887	.452	18.16	16.66	16.66	104
1876-78.	214,878,460	5,785,752	84,723,242	.384	14.64	14.28	14.58	91
1893-95.	299,190,395	7,999,874	114,336,961	.382	.....	14.29	14.33	90
1862....	78,155,000	2,122,844	36,955,070	.418	17.41	15.44	15.99	100
1872....	117,261,970	3,142,551	34,907,605	.298	.....	11.11	15.92	100

TABLE V. (d).—Continued.

## VIRGINIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE, IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Currency.	Gold.		
1862-66.	38,946,428	976,220	34,744,740	.598	35.59	23.87	28.08	115
1867-70.	132,581,000	3,430,760	122,089,120	.728	35.59	28.12	26.80	110
1871-74.	119,809,000	3,169,726	90,516,920	.678	28.55	25.62	24.66	101
1875-78.	139,704,740	3,624,977	83,303,993	.567	22.98	21.85	20.46	84
1879-82.	182,798,262	4,927,181	115,333,673	.631	.....	23.41	23.54	96
1883-86.	175,136,100	4,593,040	96,353,982	.550	.....	20.98	21.38	87
1887-90.	200,956,000	5,252,140	103,313,564	.514	.....	19.67	20.49	84
1891-94.	185,769,203	4,952,959	95,641,887	.515	.....	19.31	19.47	80
1862-66.	38,946,428	976,220	34,744,740	.598	35.59	23.87	28.08	115
1867-73.	223,049,000	5,822,638	191,280,340	.714	32.85	27.35	26.84	110
1874-80.	263,475,542	6,942,193	158,422,464	.575	22.82	21.83	20.87	85
1881-87.	317,111,560	8,358,373	183,401,654	.578	.....	21.94	22.45	92
1888-94.	333,118,203	8,827,579	173,448,681	.521	.....	19.65	19.29	79
1862-94.	1,175,700,733	30,927,003	741,297,879	.588	23.97	22.36	22.36	91
1876-78.	106,171,740	1,738,653	60,982,173	.560	35.07	34.20	20.06	82
1893-95.	140,122,985	3,704,960	62,547,572	.446	.....	16.88	17.00	69
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	28,705,000	767,536	22,461,580	.694	29.26	25.95	24.47	100
1895.....	47,237,802	1,238,168	18,730,795	.397	.....	15.13	15.42	63

## GEORGIA.

1862-66.	17,953,819	493,427	28,304,315	1.015	57.35	36.94	37.32	132
1867-70.	128,333,000	3,552,806	134,577,330	.826	37.88	29.85	30.93	109
1871-74.	114,675,000	3,078,616	107,174,980	.830	34.81	30.91	30.97	109
1875-78.	125,220,280	3,264,013	93,280,074	.707	28.58	27.13	26.55	94
1879-82.	138,171,014	3,585,743	107,449,283	.778	.....	29.97	28.96	102
1883-86.	154,096,500	4,035,309	100,808,055	.654	.....	24.98	24.86	88
1887-90.	159,886,000	4,175,404	100,146,358	.626	.....	23.98	24.06	85
1891-94.	175,603,512	4,585,573	105,980,788	.604	.....	23.11	23.28	82
1862-66.	17,953,819	493,427	28,304,315	1.015	57.35	36.94	37.32	132
1867-73.	211,343,000	5,794,800	211,210,200	.829	36.45	30.24	30.94	109
1874-80.	219,056,094	5,700,082	170,596,610	.747	29.93	28.71	27.68	98
1881-87.	271,729,700	7,108,345	188,166,542	.692	.....	26.47	26.25	93
1888-94.	293,856,512	7,674,737	179,443,466	.611	.....	23.38	23.56	83
1862-94.	1,013,939,125	26,770,891	777,721,133	.714	29.05	27.03	27.03	96
1876-78.	97,970,280	2,544,112	67,770,074	.674	26.63	25.97	24.92	88
1893-95.	138,241,661	3,614,297	71,853,331	.520	.....	19.88	20.07	71
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	28,700,000	788,050	27,332,410	.844	34.68	30.76	28.29	100
1895.....	50,321,044	1,331,504	21,572,246	.429	.....	16.20	16.89	60



TABLE V. (d).—Continued.

## TEXAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	SIMPLE AVERAGE, IN DOLLARS.			Corrected Average Values Per Ton.	Index Nos.
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Currency.	Gold.		
1862-66.	23,228,272	641,074	22,690,262	.629	35.39	22.78	23.11	126
1867-70.	96,825,000	2,665,328	81,079,670	.667	30.42	24.22	25.81	141
1871-74.	108,939,000	3,016,788	85,580,500	.705	28.36	25.45	27.23	149
1875-78.	220,747,500	6,038,352	124,389,370	.534	20.60	19.51	19.48	106
1879-82.	235,932,652	6,283,522	167,293,423	.709	.....	26.62	26.64	145
1883-86.	344,013,600	9,127,949	194,466,623	.565	.....	21.30	21.24	116
1887-90.	389,361,000	10,324,808	190,373,391	.489	.....	18.44	18.47	101
1891-94.	364,059,019	9,449,093	187,190,676	.514	.....	19.81	19.51	106
1862-66.	23,228,272	641,074	22,690,262	.629	35.39	22.78	23.11	126
1867-73.	175,156,000	4,835,560	142,719,150	.682	29.51	24.70	26.42	144
1874-80.	364,669,352	9,939,832	226,562,621	.597	22.79	21.90	22.03	120
1881-87.	560,765,400	14,856,856	331,409,125	.591	.....	22.31	22.23	121
1888-94.	659,287,019	17,273,592	329,682,757	.500	.....	19.08	18.93	103
1862-94.	1,783,106,043	47,546,914	1,053,063,915	.568	22.15	21.32	21.32	116
1876-78.	185,817,500	5,074,292	94,470,070	.496	18.62	18.15	18.01	98
1893-95.	301,541,139	7,877,400	131,005,967	.434	.....	16.63	16.49	90
1862....	.....	.....	.....	.....	.....	.....	.....	.....
1872....	30,094,000	835,990	14,917,900	.340	17.84	15.82	18.33	100
1895....	124,634,166	3,318,876	38,659,663	.310	.....	11.65	12.20	67

## CALIFORNIA.

1862-66.	10,341,172	294,572	10,653,150	1.030	.....	36.17	35.66	108
1867-70.	64,280,000	1,844,418	63,037,790	.981	.....	34.18	34.20	104
1871-74.	106,037,000	3,053,858	119,902,570	1.131	.....	39.26	39.07	118
1875-78.	136,557,250	3,931,383	148,607,550	1.088	.....	37.80	37.62	114
1879-82.	156,764,100	4,546,673	155,138,561	.990	.....	34.12	34.08	103
1883-86.	167,164,400	4,866,617	126,584,618	.757	.....	26.01	26.06	79
1887-90.	157,563,000	4,580,480	115,106,141	.731	.....	25.13	25.50	77
1891-94.	160,279,349	4,674,186	107,936,338	.673	.....	23.09	23.13	70
1862-66.	10,341,172	294,572	10,653,150	1.030	.....	36.17	35.66	108
1867-73.	137,964,000	3,963,904	151,633,860	1.099	.....	38.25	38.12	115
1874-80.	249,701,850	7,187,444	264,009,936	1.057	.....	36.73	36.57	111
1881-87.	280,464,900	8,171,291	224,287,263	.799	.....	27.45	27.53	83
1888-94.	280,514,349	8,174,976	196,382,509	.700	.....	24.02	24.09	73
1862-94.	958,986,271	27,792,187	846,966,718	.583	.....	30.47	30.47	92
1876-78.	109,157,250	3,141,783	117,406,550	1.076	.....	37.37	37.17	113
1893-95.	116,401,045	3,406,840	65,050,129	.559	.....	19.09	19.15	58
1862....	10,341,172	294,472	10,653,150	1.030	.....	36.17	35.66	108
1872....	29,250,000	843,200	31,481,000	.954	.....	37.34	33.02	100
1895....	44,044,696	1,293,167	25,913,929	.588	.....	20.04	20.07	61



TABLE V. (e).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the combined acreage of the corn, oat, and wheat crops of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total product of said crops in bushels and tons and the total gold and currency values of the same, and its average home or farm value per ton and bushel in gold and currency.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency	Gold.	
1862-66 .....	1,122,122,121	26,179,251	1,004,967,589	.580	38.39	24.65	103
1867-70 .....	1,311,874,000	32,511,760	1,137,750,860	.604	35.00	28.02	116
1871-74 .....	1,290,706,000	32,929,378	966,455,230	.677	29.35	26.66	111
1875-78 .....	1,599,681,070	40,385,062	964,445,717	.578	23.88	22.88	95
1879-82 .....	1,761,001,148	45,114,698	1,191,048,603	.676	.....	26.40	110
1883-86 .....	1,919,513,600	49,034,453	1,046,986,992	.545	.....	21.35	89
1887-90 .....	1,874,108,060	48,198,558	996,011,573	.531	.....	20.66	86
1891-94 .....	1,859,646,998	47,599,081	974,377,179	.524	.....	20.47	85
1862-66 .....	1,122,122,121	26,179,251	1,004,967,589	.580	38.39	24.65	103
1867-73 .....	2,282,948,000	57,220,388	1,852,615,300	.684	32.38	27.28	113
1874-80 .....	2,817,627,658	71,707,046	1,783,196,761	.611	24.87	24.00	100
1881-87 .....	3,246,067,160	82,890,682	1,918,816,391	.590	.....	23.15	97
1888-94 .....	3,269,888,058	83,954,874	1,722,447,702	.526	.....	20.53	81
1862-94 .....	12,738,652,997	321,952,241	8,282,043,743	.594	25.72	23.55	98
1867-94 .....	11,616,530,876	295,772,990	7,277,076,154	.596	24.60	23.41	98
1867-78 .....	4,202,261,070	105,826,200	3,068,651,807	.645	29.17	25.63	107
1879-86 .....	3,680,514,748	94,149,151	2,238,035,595	.608	.....	23.77	99
1887-94 .....	3,733,755,058	95,797,639	1,970,388,752	.528	.....	20.59	82
1867-78 .....	4,202,261,070	105,826,200	3,068,651,807	.645	29.17	25.63	107
1879-82 .....	1,761,001,146	45,114,698	1,191,048,603	.676	.....	26.40	110
1883-94 .....	5,653,268,658	144,832,092	3,017,375,744	.534	.....	20.83	87
1867-80 .....	5,100,575,658	128,927,434	3,635,812,061	.644	28.20	25.45	106
1881-94 .....	6,515,955,218	166,845,556	3,641,264,093	.559	.....	21.82	90
1876-78 .....	1,249,868,070	31,525,577	723,503,997	.564	22.95	22.38	90
1893-95 .....	1,433,361,122	36,626,681	636,966,536	.444	.....	17.39	74
1862 .....	172,015,007	3,940,258	112,013,230	.448	28.42	19.59	68
1872 .....	339,264,000	8,682,130	230,778,420	.611	26.04	23.99	100
1895 .....	554,201,144	14,173,559	205,305,692	.370	.....	14.48	68

TABLE V. (f).

An exhibit for various years and periods of years, from 1862 to 1895, inclusive, of the different average gold farm values, and index numbers for the combined crops of corn, oats, and wheat raised in the States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations, explained in the table.

YEARS.	AVERAGE VALUES, PER TON, OBTAINED BY			INDEX NUMBERS.				
	Simple Division. (1)	Method for Correct- ing Averages Adopted in this Report. (2)	Allowing for Influence of Changing Freight Rates, Per Ton. (3)	Corresponding to Column			Average of Index Numbers for Seven States.	Accord- ing to Relative Import- ance. (a)
				(1)	(2)	(3)		
1862-66. ....	24.65	25.87	19.25	103	109	116	107	100
1867-70. ....	28.02	28.07	21.43	116	119	129	111	117
1871-74. ....	26.66	26.89	19.54	111	114	118	108	110
1875-78. ....	22.88	22.37	18.20	95	94	110	90	93
1879-82. ....	26.40	25.89	22.47	110	109	135	102	108
1883-86. ....	21.35	21.54	19.11	89	91	115	85	91
1887-90. ....	20.66	21.06	20.03	86	89	121	83	89
1891-94. ....	20.47	20.59	20.59	85	87	124	80	85
1862-66. ....	24.65	25.87	19.25	103	109	116	107	100
1867-73. ....	27.28	27.48	19.88	113	116	120	138	114
1874-80. ....	24.00	23.54	19.17	100	99	115	94	98
1881-87. ....	23.15	23.21	20.47	97	98	123	91	97
1888-94. ....	20.53	20.62	20.29	81	87	122	81	86
1862-94. ....	23.55	23.49	20.05	98	99	121	92	98
1876-78. ....	22.38	21.05	16.99	93	89	102	87	90
1893-95. ....	17.39	17.61	17.24	72	74	104	69	74
1862. ....	19.59	.....	.....	81	.....	.....	80	68
1872. ....	23.99	23.68	16.62	100	100	100	100	100
1895. ....	14.48	16.52	14.08	60	70	85	63	68

(a) Computed by Sauerbeck's method

TABLE V. (g).

An exhibit for years and various periods of years, from 1862 to 1895, inclusive, of the combined product in bushels and tons of the corn, oat, and wheat crops of the seventeen states included in Tables V. (a) to (f), inclusive, together with its total currency values and its average home or farm value per ton and bushel in gold and currency, and index numbers for these values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency	Gold.	
1862-66	4,392,535,210	113,979,335	3,125,523,429	.453	27.42	17.46	109
1867-70	4,442,203,000	115,023,846	3,145,782,460	.502	27.35	21.72	135
1871-74	5,000,847,000	130,903,204	2,769,375,840	.499	21.16	19.06	119
1875-78	6,998,763,166	182,379,778	3,005,961,389	.410	16.48	15.72	98
1879-82	8,144,771,872	213,473,067	4,350,117,424	.534	.....	20.38	127
1883-86	9,333,575,100	238,921,009	3,597,451,160	.385	.....	15.06	94
1887-90	9,354,896,060	237,627,694	3,704,453,868	.396	.....	15.59	97
1891-94	9,090,142,911	229,822,160	3,671,764,375	.439	.....	15.98	99
1862-66	4,392,535,210	113,979,335	3,125,523,429	.453	27.42	17.46	109
1867-73	8,273,369,000	215,156,268	5,145,303,290	.520	23.91	20.01	124
1874-80	12,443,792,248	326,283,392	5,830,029,827	.451	17.87	17.20	107
1881-87	15,215,090,890	389,639,615	6,758,549,886	.444	.....	17.05	106
1888-94	16,432,946,971	417,071,483	6,511,023,563	.396	.....	15.61	97
1862-94	56,757,734,319	1,462,130,093	27,370,429,945	.443	18.72	17.22	107
1867-94	52,365,199,109	1,348,150,758	24,244,906,516	.442	17.98	17.20	107
1867-78	16,441,813,166	428,306,828	8,921,119,689	.478	20.83	18.35	114
1879-86	17,478,346,972	452,394,076	7,947,568,584	.455	.....	17.57	109
1887-94	18,445,038,971	467,449,854	7,376,218,243	.400	.....	15.78	98
1867-78	16,441,813,166	428,306,828	8,921,119,689	.478	20.83	18.35	114
1879-82	8,144,771,872	213,473,067	4,350,117,424	.534	.....	20.38	127
1883-94	27,778,614,071	706,370,863	10,973,669,403	.395	.....	15.54	97
1867-80	20,717,161,248	541,439,660	10,975,333,117	.479	20.27	18.32	114
1881-94	31,648,037,861	806,711,098	13,269,573,399	.419	.....	16.45	102
1876-78	5,321,445,166	138,736,393	2,222,735,069	.407	16.02	15.63	97
1893-95	6,806,087,468	170,649,189	2,259,645,629	.332	.....	13.24	82
1862	848,498,877	22,351,588	383,938,194	.312	17.18	11.84	74
1872	1,352,596,000	35,406,134	638,225,320	.421	18.03	16.09	100
1895	2,802,887,577	70,653,034	737,070,052	.263	.....	10.43	65

TABLE V. (h).

An exhibit for various years and periods of years, from 1862 to 1895, inclusive, of the different average gold farm values and index numbers for the combined crops of corn, oats, and wheat raised in the seventeen states included in Tables (a) to (f), inclusive, the different averages and index numbers having been obtained by different calculations, explained in the table.

YEARS.	AVERAGE VALUES, PER TON, OBTAINED BY			INDEX NUMBERS.				
	Simple Division. (1)	Method for Correct- ing Averages Adopted in this Report. (2)	Allowing for Influence of Changing Freight Rates, Per Ton. (3)	Corresponding to Column.			Average of Index Numbers for Seven- teen States.	Accord- ing to Relative Import- ance. (a)
				(1)	(2)	(3)		
1862-66. ....	17.46	17.56	14.79	109	111	123	117	102
1867-70. ....	21.72	20.72	17.13	135	131	142	130	125
1871-74. ....	19.06	18.47	15.03	119	116	125	117	113
1875-78. ....	15.72	15.69	13.41	98	99	111	97	98
1879-82. ....	20.38	20.05	18.31	127	126	152	124	121
1883-86. ....	15.06	15.62	14.32	94	98	119	97	91
1887-90. ....	15.59	16.21	15.62	97	102	130	101	103
1891-94. ....	15.98	16.16	16.16	99	102	134	102	99
1862-66. ....	17.46	17.56	14.79	109	111	123	117	102
1867-73. ....	20.01	19.21	15.52	124	121	129	120	118
1874-80. ....	17.20	17.00	15.00	107	107	125	106	105
1881-87. ....	17.05	17.61	16.19	106	111	135	108	109
1888-94. ....	15.61	16.03	15.82	97	101	132	101	101
1862-94. ....	17.22	17.21	15.54	107	108	129	107	107
1876-78. ....	15.63	15.02	12.85	97	95	107	97	98
1893-95. ....	13.24	13.38	12.94	82	84	108	93	86
1862. ....	11.84	.....	.....	74	.....	.....	76	66
1872. ....	16.09	15.87	12.03	100	100	100	100	100
1895. ....	10.43	11.73	10.82	65	74	90	71	75

(a) Computed by Sauerbeck's method.



TABLE V. (i).

An exhibit for years and various periods of years, from 1862 to 1895, inclusive, of the corn, oat, and wheat crops of the states of the American Union *not included* in Tables (a) to (g), together with the total currency values of the same and its average home or farm values per ton and bushel in gold and currency, and index numbers for these values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66 .....	515,754,782	13,009,069	529,748,553	.699	40.72	27.73	111
1867-70 .....	1,203,198,800	32,081,181	1,086,273,525	.718	33.86	26.91	108
1871-74 .....	974,468,400	26,087,393	776,679,365	.717	29.77	26.80	107
1875-78 .....	1,198,493,190	31,934,129	725,628,259	.577	22.72	21.65	87
1879-82 .....	1,453,655,929	38,715,916	974,091,022	.670	.....	25.16	101
1883-86 .....	1,771,291,355	46,609,933	965,717,991	.545	.....	20.72	83
1887-90 .....	2,090,424,940	54,727,464	1,134,646,661	.543	.....	20.73	83
1891-94 .....	2,115,240,191	55,492,374	1,071,783,160	.507	.....	19.31	77
1862-66 .....	515,754,782	13,009,069	529,748,553	.699	40.72	27.73	111
1867-73 .....	1,948,728,000	52,046,212	1,666,609,395	.713	32.02	26.66	107
1874-80 .....	2,146,373,839	57,278,617	1,369,957,883	.611	23.92	22.89	92
1881-87 .....	3,066,021,835	80,741,617	1,784,047,724	.582	.....	22.09	88
1888-94 .....	3,645,649,131	95,581,943	1,914,204,981	.525	.....	20.02	80
1862-94 .....	11,322,527,587	298,657,489	7,264,568,536	.597	24.32	22.63	91
1867-94 .....	10,806,772,805	285,648,390	6,734,819,983	.592	23.57	22.40	90
1867-78 .....	3,376,160,390	90,102,703	2,570,581,149	.666	28.53	25.01	100
1879-86 .....	3,224,951,284	85,325,849	1,939,809,013	.601	.....	22.73	91
1887-94 .....	4,205,665,131	110,309,838	2,206,429,821	.524	.....	20.00	80
1867-78 .....	3,376,160,390	90,102,703	2,570,581,149	.666	28.53	25.01	100
1879-82 .....	1,453,655,929	38,715,916	974,091,022	.670	.....	22.58	90
1883-94 .....	5,976,956,486	156,829,771	3,172,147,812	.530	.....	20.23	81
1867-80 .....	4,095,101,839	109,324,830	3,036,567,278	.659	27.77	24.67	99
1881-94 .....	6,711,670,966	176,323,560	3,698,252,705	.551	.....	20.97	84
1876-78 .....	908,288,690	24,154,422	529,327,729	.....	21.91	21.49	86
1893-95 .....	1,626,204,698	42,597,372	697,268,760	.429	.....	16.37	66
1862 .....	72,575,066	1,775,836	31,906,414	.348	17.97	14.24	57
1872 .....	261,867,100	7,037,863	198,420,055	.672	.....	25.01	100
1895 .....	639,797,487	16,783,031	232,033,120	.363	.....	13.83	55

TABLE V. (j).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the combined acreage of the corn, oat, and wheat crops of the nation not included in the ten states of Table (a) (commonly referred to in this report as Exterior States), together with the total product of said crops in bushels and tons, and the total gold and currency values of the same, and its average home or farm value per ton and bushel in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars	Average Value Per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Gold.	Cur- rency.
1862...	7,338,985	244,590,073	5,716,094	143,919,644	102,473,764	17.93	58.8	41.9
1863...	9,992,009	247,501,115	5,823,762	220,386,623	141,708,599	24.33	89.0	57.2
1864...	11,442,898	263,694,770	6,255,250	358,852,371	166,148,648	26.56	136.8	63.0
1865...	11,947,532	317,872,441	7,459,363	251,427,955	179,519,560	24.06	79.1	56.4
1866...	30,267,078	564,218,504	13,993,881	560,129,549	416,176,255	29.87	99.3	73.7
1867...	31,722,183	606,051,400	15,255,874	603,596,390	435,796,594	28.56	99.6	71.9
1868...	33,557,107	644,439,400	16,613,077	553,904,740	414,587,133	24.96	85.9	64.3
1869...	32,345,369	628,761,900	16,101,087	563,277,380	467,839,113	29.06	89.6	74.4
1870...	31,395,773	635,820,100	16,622,903	503,245,875	456,161,824	27.44	79.1	71.7
1871...	29,731,167	549,240,400	14,251,448	441,568,640	407,057,579	28.56	80.4	74.1
1872...	30,387,663	601,131,100	15,719,993	429,198,475	384,256,400	24.44	71.4	63.9
1873...	30,531,140	566,231,700	14,702,219	424,433,195	383,944,839	26.11	74.9	67.8
1874...	32,359,503	548,571,200	14,343,111	447,934,285	401,688,600	28.00	81.7	73.2
1875...	33,680,733	640,017,500	16,639,192	437,242,250	390,953,547	23.49	68.3	61.0
1876...	37,364,045	700,483,000	18,184,256	416,022,290	393,702,750	21.65	59.4	56.2
1877...	37,621,223	719,191,800	18,430,582	432,322,475	426,307,888	23.13	60.1	59.2
1878...	40,163,560	738,481,960	19,065,161	404,486,961	404,486,961	21.21	54.8	54.7
1879...	39,992,000	721,835,050	18,822,615	490,347,053	.....	26.05	.....	67.9
1880...	46,657,098	895,420,987	23,500,746	524,799,330	.....	22.33	.....	58.7
1881...	47,426,445	681,526,090	17,492,403	572,519,497	.....	32.73	.....	84.0
1882...	52,233,843	915,874,950	24,014,850	577,473,745	.....	24.05	.....	63.5
1883...	54,209,978	850,843,955	22,012,572	531,141,823	.....	24.13	.....	62.4
1884...	56,593,266	915,742,000	23,870,038	507,582,310	.....	21.26	.....	55.4
1885...	57,547,379	955,072,000	24,686,936	478,331,980	.....	19.38	.....	50.8
1886...	59,655,615	969,147,000	25,074,840	495,648,970	.....	19.77	.....	51.1
1887...	60,715,732	1,023,883,000	26,480,660	540,165,890	.....	20.40	.....	52.8
1888...	61,831,728	1,029,628,000	26,582,936	547,539,850	.....	20.60	.....	53.2
1889...	63,242,896	1,028,445,000	26,763,320	487,303,139	.....	18.20	.....	47.4
1890...	60,668,487	882,577,000	23,099,106	555,649,355	.....	24.06	.....	62.9
1891...	61,665,128	1,145,285,000	29,812,448	663,482,902	.....	22.26	.....	57.9
1892...	58,142,171	964,035,000	25,011,544	485,780,953	.....	19.42	.....	50.4
1893...	57,026,936	923,944,561	23,773,006	438,133,642	.....	18.43	.....	47.4
1894...	57,277,445	941,622,628	24,494,457	458,762,842	.....	18.73	.....	48.7
1895...	60,365,051	1,193,998,631	30,956,590	437,338,812	.....	14.13	.....	36.6
1862-66	70,988,502	1,637,876,903	39,188,350	1,534,716,142	1,006,026,826	25.67	93.7	61.4
1867-70	129,020,432	2,515,072,800	64,592,941	2,224,024,385	1,774,384,664	27.47	88.4	70.5
1871-74	123,009,473	2,265,174,400	59,016,771	1,743,134,595	1,576,947,418	26.72	76.9	69.6
1875-78	148,829,561	2,798,174,200	72,319,191	1,690,073,976	1,615,451,146	22.33	60.4	60.4
1879-82	186,309,386	3,214,657,077	83,830,614	2,165,139,625	.....	25.83	.....	67.4
1883-86	228,006,238	3,690,804,955	95,644,386	2,012,704,933	.....	21.04	.....	51.8
1887-90	246,458,843	3,644,533,000	102,926,022	2,130,658,234	.....	20.70	.....	53.7
1891-94	234,111,680	3,974,887,189	103,091,455	2,046,160,339	.....	19.85	.....	51.5
1862-66	70,988,502	1,637,876,903	39,188,350	1,534,716,142	1,006,026,826	25.67	93.7	61.4
1867-73	219,670,402	4,231,676,000	109,266,601	3,519,224,695	2,949,643,482	26.99	83.2	69.7
1874-80	267,838,162	4,964,001,497	128,985,663	3,153,154,644	3,032,286,129	23.50	63.5	61.1
1881-87	388,382,258	6,312,088,995	163,632,299	3,702,864,115	.....	22.63	.....	58.7
1888-94	419,854,791	6,915,537,189	179,536,817	3,636,652,683	.....	20.26	.....	52.6
1862-94	1,366,734,115	24,061,180,584	620,609,730	15,546,612,279	14,327,473,235	23.08	64.6	59.5
1867-94	1,295,745,613	22,423,303,681	581,421,380	14,011,896,137	13,321,446,409	22.91	62.4	59.4
1867-78	400,859,466	7,578,421,460	195,928,903	5,657,232,056	4,966,783,228	25.35	74.6	65.3
1879-86	414,315,624	6,905,462,032	179,475,000	4,177,844,608	.....	23.28	.....	60.5
1887-94	480,570,523	7,939,420,189	206,017,477	4,176,818,573	.....	20.27	.....	52.6
1867-78	400,859,466	7,578,421,460	195,928,903	5,657,232,056	4,966,783,228	25.35	74.6	65.3
1879-82	186,309,386	3,214,657,077	83,830,614	2,165,139,625	.....	25.83	.....	67.4
1883-94	708,576,761	11,630,225,144	301,661,863	6,189,523,556	.....	24.10	.....	53.2
1867-80	487,508,564	9,195,677,497	238,252,264	6,672,379,339	5,981,929,611	25.10	72.6	65.0
1881-94	808,237,049	13,227,626,184	343,169,116	7,339,516,798	.....	21.39	.....	55.5
1876-78	115,148,828	2,158,156,760	55,679,999	1,252,831,726	1,224,497,599	21.90	58.1	56.7
1893-95	171,669,432	3,059,565,820	79,224,053	1,334,235,296	.....	16.84	.....	43.6

TABLE V. (k).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the combined acreage of the corn, oat, and wheat crops of the United States, the average yield per acre in tons, its total home value in currency, and its average home or farm value per ton and bushel in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Tons.	AVERAGE.		
		Bushels.	Tons.			Value Per Bu. in Cents.		Value Per Ton in Dollars, Go
						Cur'ncy	Gold.	
1862.	31,222,082	921,073,943	24,127,424	415,844,608	.764	45.1	31.4	12.01
1863.	35,097,551	753,789,376	19,435,229	582,073,351	.544	77.2	49.6	19.25
1864.	37,058,591	867,137,420	22,489,357	961,414,549	.607	10.9	51.3	19.79
1865.	38,189,165	1,078,202,975	27,783,702	635,244,207	.727	58.9	42.0	16.32
1866.	58,595,253	1,288,086,278	33,152,722	1,060,695,267	.566	82.3	61.1	23.77
1867.	61,588,226	1,259,459,400	32,345,370	1,205,217,820	.502	95.7	64.0	26.90
1868.	63,013,114	1,385,524,400	36,183,227	1,031,192,660	.574	74.4	55.3	21.17
1869.	65,745,690	1,423,000,900	36,904,311	1,040,804,720	.561	73.1	60.5	23.34
1870.	66,431,963	1,577,417,100	41,672,119	954,840,785	.626	60.5	54.7	20.73
1871.	62,400,839	1,478,363,400	38,786,704	871,257,750	.621	58.9	54.1	20.65
1872.	65,385,964	1,614,463,100	42,443,997	836,645,375	.549	51.8	46.2	17.56
1873.	71,120,524	1,483,868,700	38,866,753	871,953,575	.546	58.8	52.9	20.20
1874.	76,901,357	1,398,620,200	36,893,143	966,198,505	.480	69.2	61.6	23.37
1875.	83,137,958	1,967,522,500	51,423,092	979,526,850	.618	49.7	44.3	16.94
1876.	90,019,293	1,894,668,000	49,780,009	888,616,410	.553	46.8	44.2	16.84
1877.	89,472,807	2,113,146,146	55,019,752	994,000,729	.615	47.0	46.3	17.80
1878.	96,870,060	2,221,919,710	58,091,054	869,445,659	.599	39.1	39.1	14.96
1879.	98,314,900	2,360,419,740	62,624,130	1,198,039,653	.617	.....	50.8	19.14
1880.	116,492,536	2,633,869,791	69,730,829	1,304,159,904	.599	.....	49.5	18.70
1881.	118,802,645	1,994,677,090	51,613,747	1,409,561,567	.435	.....	70.7	27.31
1882.	121,221,430	2,609,461,180	68,214,277	1,412,447,322	.563	.....	54.1	20.71
1883.	125,082,446	2,543,455,455	65,209,296	1,228,741,031	.522	.....	43.3	18.84
1884.	130,460,582	2,891,921,000	74,995,782	1,133,126,290	.575	.....	39.2	15.11
1885.	130,103,026	2,922,697,000	74,996,832	1,090,626,880	.561	.....	37.3	14.54
1886.	136,158,366	2,746,793,000	70,335,032	1,110,674,950	.517	.....	40.4	15.79
1887.	135,955,400	2,572,108,000	70,336,266	1,157,419,520	.479	.....	45.0	17.80
1888.	140,007,183	3,105,393,000	79,361,920	1,258,253,850	.567	.....	40.5	15.85
1889.	143,912,231	3,354,967,000	85,902,016	1,112,191,544	.599	.....	33.1	12.94
1890.	134,489,286	2,412,553,000	62,074,956	1,311,255,615	.461	.....	54.3	21.12
1891.	141,703,273	3,410,328,000	87,832,016	1,582,224,206	.620	.....	46.4	18.01
1892.	136,243,913	2,805,448,000	71,652,022	1,173,512,122	.526	.....	41.8	16.38
1893.	133,938,921	2,654,482,706	67,451,522	992,373,100	.504	.....	37.4	14.71
1894.	124,488,258	2,335,124,396	58,358,974	905,438,107	.470	.....	42.6	17.06
1895.	144,001,568	3,442,685,064	87,436,065	969,103,172	.607	.....	28.1	11.08
62-66	200,162,642	4,908,289,992	126,988,434	3,655,271,982	.632	74.5	50.4	18.51
67-70	256,778,993	5,645,401,800	147,105,027	4,232,055,985	.572	74.9	58.3	22.17
71-74	275,808,684	5,975,315,400	156,990,597	3,546,055,205	.562	59.4	53.5	20.34
75-78	359,500,118	8,197,256,356	214,313,907	3,731,589,648	.596	45.5	42.1	16.60
79-82	454,831,511	9,598,427,801	252,188,983	5,324,208,446	.554	.....	55.5	21.11
83-86	521,804,920	11,104,866,455	285,530,942	4,563,169,151	.547	.....	41.1	15.98
87-90	554,364,109	11,445,321,000	292,355,153	4,839,100,529	.527	.....	42.3	16.55
91-94	536,374,365	11,205,383,102	285,314,534	4,743,547,535	.532	.....	42.3	16.87
62-66	200,162,642	4,908,289,992	126,988,434	3,655,271,982	.632	74.5	50.4	18.51
67-73	455,686,320	10,222,097,000	267,202,481	6,811,912,685	.588	66.6	54.0	21.30
74-80	651,208,911	14,590,166,087	383,562,009	7,199,987,710	.589	49.3	46.7	18.05
81-87	897,784,404	18,281,112,725	470,381,232	8,542,597,560	.524	.....	46.7	18.16
88-94	954,783,065	20,078,596,102	512,653,426	8,425,228,544	.537	.....	42.1	16.43
62-94	3,159,625,342	68,080,261,906	1,760,787,582	34,634,998,481	.557	50.9	46.7	18.13
67-94	2,959,462,700	63,171,971,914	1,633,799,148	30,979,726,499	.552	49.0	46.4	18.10
67-78	892,087,795	19,817,973,556	518,409,531	11,509,700,838	.581	58.1	49.6	19.51
79-86	976,636,431	20,703,294,256	537,719,925	9,887,377,597	.548	.....	47.8	18.39
87-94	1,090,738,474	22,650,704,102	577,669,692	9,582,648,064	.530	.....	42.3	16.59
67-78	892,087,795	19,817,973,556	518,409,531	11,509,700,838	.581	58.1	49.6	19.51
79-82	454,831,511	9,598,427,801	252,188,983	5,324,208,446	.554	.....	55.5	21.11
83-94	1,612,543,394	33,755,570,557	863,200,634	14,145,817,215	.535	.....	.....	16.39
67-80	1,106,895,231	24,812,263,087	650,764,490	14,011,900,395	.591	56.5	49.8	19.38
81-94	1,852,567,469	38,359,708,827	983,034,658	16,967,826,104	.531	.....	44.2	17.26
76-78	276,362,160	6,229,733,856	162,890,815	2,752,062,798	.503	44.1	41.4	16.49
93-95	402,428,747	8,432,292,166	213,246,561	2,956,914,379	.503	.....	35.7	13.86



TABLE V. (I).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the simple index numbers, the average gold values per bushel and ton of the combined corn, oat, and wheat crops of ten Mississippi Valley states, of the balance of the nation (designated as Exterior States), and in the nation, together with an exhibit of the national per capita product of these combined crops in tons and the value of the same in gold.

YEARS.	INDEX NUMBERS.			VALUE PER TON IN DOLLARS, GOLD.			VALUE IN CENTS PER BUSHEL, GOLD.			PER CAPITA, PRODUCT.	
	Ten States	Exterior States	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862	75	73	68	10.18	17.93	12.01	.276	.419	.314	.....	.....
1863	126	100	110	17.08	24.33	19.25	.459	.572	.496	.....	.....
1864	127	105	113	17.18	26.56	19.79	.444	.630	.513	.....	.....
1865	100	98	93	13.48	24.06	16.32	.360	.564	.420	.....	.....
1866	143	122	135	19.35	29.87	23.77	.513	.737	.611	.....	.....
1867	188	117	153	25.41	28.56	26.90	.665	.719	.640	.893	24.03
1863.	133	102	121	17.97	24.96	21.17	.474	.643	.553	.978	20.72
1869.	140	119	133	18.91	29.06	23.34	.495	.744	.605	.977	22.81
1870.	120	112	118	16.27	27.44	20.73	.433	.717	.547	1.081	22.41
1871.	119	117	118	16.06	28.56	20.65	.424	.741	.541	.981	20.25
1872.	100	100	100	13.52	24.44	17.56	.356	.639	.462	1.045	18.36
1873.	123	107	115	16.61	26.11	20.20	.437	.678	.529	.933	18.84
1874.	151	115	133	20.43	28.00	23.37	.542	.732	.616	.862	20.15
1875.	102	96	96	13.81	23.49	16.94	.361	.610	.443	1.170	19.82
1876.	104	89	66	14.07	21.65	16.84	.372	.562	.442	1.103	18.57
1877.	112	95	101	15.12	23.13	17.80	.392	.592	.463	1.187	21.13
1878.	88	87	85	11.91	21.21	14.96	.313	.547	.391	1.220	18.26
1879.	120	107	109	16.16	26.05	19.14	.432	.679	.508	1.281	24.51
1880.	125	91	106	16.86	22.33	18.70	.448	.587	.495	1.390	26.00
1881.	181	134	155	24.53	32.73	27.31	.637	.840	.707	1.006	27.47
1882.	140	98	118	18.89	24.05	20.71	.493	.635	.541	1.299	26.90
1883.	119	99	107	16.15	24.13	18.84	.412	.624	.483	1.214	22.88
1884.	91	87	86	12.24	21.26	15.11	.316	.554	.392	1.366	20.64
1885.	90	79	83	12.17	19.38	14.54	.311	.508	.373	1.335	19.42
1886.	101	89	90	13.59	19.77	15.79	.346	.511	.404	1.225	19.35
1887.	118	83	101	16.02	20.40	17.80	.392	.528	.450	1.108	19.72
1888.	100	84	90	13.47	20.60	15.85	.342	.532	.405	1.323	20.97
1889.	78	74	74	10.57	18.20	12.94	.268	.474	.331	1.402	18.14
1890.	143	98	120	19.38	24.06	21.12	.494	.629	.543	1.391	20.94
1891.	117	91	103	15.83	22.26	18.01	.405	.579	.464	1.373	24.73
1892.	109	79	93	14.75	19.42	16.38	.373	.504	.418	1.095	17.94
1893.	94	75	84	12.69	18.43	14.71	.320	.474	.374	1.006	14.85
1894.	117	77	97	15.85	18.73	17.06	.385	.487	.426	.835	14.58
1895.	70	58	63	9.42	14.13	11.08	.236	.366	.281	1.253	13.89
1862-66	113	105	105	15.31	25.67	18.51	.411	.614	.504	.....	.....
1867-70	142	112	130	19.23	27.47	22.17	.507	.705	.583	.984	22.48
1871-74	122	108	116	16.51	26.72	20.34	.436	.696	.535	.954	19.40
1875-78	101	91	95	13.68	22.33	16.60	.360	.604	.421	1.171	19.44
1879-82	139	106	120	18.76	25.83	21.11	.495	.674	.555	1.243	26.24
1883-86	90	86	91	13.43	21.04	15.98	.344	.518	.411	1.285	20.54
1887-90	106	84	94	14.30	20.70	16.55	.362	.537	.423	1.205	19.95
1891-94	109	81	95	14.80	19.85	16.87	.373	.515	.423	1.079	17.93
1862-66	113	105	105	15.5	25.67	18.51	.411	.614	.504	.....	.....
1867-73	128	110	121	17.37	26.99	21.30	.458	.697	.540	.985	20.98
1874-80	113	97	103	15.28	23.50	18.05	.404	.611	.467	1.181	21.31
1881-87	117	93	103	15.78	22.63	18.16	.404	.587	.467	1.223	22.21
1888-94	107	83	94	14.41	20.26	16.43	.364	.526	.421	1.144	18.79
1862-94	114	94	103	15.44	23.08	18.13	.400	.595	.467	.....	.....
1867-94	114	94	103	15.45	22.91	18.10	.399	.594	.464	1.143	20.69
1867-78	118	103	111	15.96	25.35	19.51	.420	.653	.496	1.043	20.34
1879-86	118	95	105	15.94	23.28	18.39	.414	.605	.478	1.265	23.26
1887-94	108	83	94	14.55	20.27	16.59	.367	.526	.423	1.139	18.89
1867-78	118	103	111	15.96	25.35	19.51	.420	.653	.496	1.043	20.34
1879-82	139	106	120	18.76	25.83	21.11	.495	.674	.555	1.243	26.24
1883-94	105	99	93	14.17	24.10	16.39	.359	.532	.....	1.183	19.39
1867-80	119	103	110	16.08	25.10	19.38	.424	.650	.498	1.092	21.16
1881-94	111	87	98	15.05	21.39	17.26	.383	.555	.442	1.180	20.37
1876-78	101	90	94	13.64	21.99	16.49	.359	.567	.414	1.171	19.32
1893-95	90	61	79	12.11	16.84	13.86	.302	.436	.357	1.041	14.43



## CHAPTER VI.

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### BARLEY.

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#### PERIODS OF HIGH AND LOW PRICES.

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Barley, the same as corn, oats, and wheat, has had its periods of high and low prices. These correspond in every case, with slight variations, with the periods of high and low prices of the other grains, thus showing how those prices have in large degree been determined by the same general causes. The high prices of 1867 and 1870 and those of 1879 to 1882 were produced by the extra foreign demand for American agricultural products that temporarily existed in those years. Years of exceptionally low prices prevailed following the financial panic of 1874, as there prevails at the present time. The general tendency of prices, interrupted by these special periods of high and low prices, has, since 1867, been decidedly downward. This decline has been more marked in the seaboard states than in the Mississippi Valley. This decline in the average price for barley has occurred in connection with a marked relative increase in the production of this grain. Here we note, then, the coincidence of

#### INCREASING PRODUCTION AND FALLING PRICES.

Table (k) exhibits the amount in tons and value in dollars of the per capita product of barley from 1867 to 1895. Table (j) exhibits the average yield per acre of this grain for the same years. Turning first to this latter table, we note a decrease of over ten per cent in the average yield per acre of barley as reported by the United States Department of Agriculture. Using the figures for that average yield to calculate the true relative amount and value of the per capita product of this grain, we have this result:

TABLE A.

An exhibit by seven-year periods, from 1867 to 1894, inclusive, of the average yield per acre of barley, as reported by the United States Department of Agriculture, and the amount in tons and value in dollars gold of the annual average per capita product of that grain as shown in Table (k), and as the same would appear relatively when corrected to allow for changes in the reported yield per acre.

YEARS.	Yield Per Acre in Bushels.	PER CAPITA PRODUCT.			
		As Reported by Agricultural Department.		As Corrected.	
		Weight in Tons.	Value in Dollars.	Weight in Tons.	Value in Dollars.
1867-73.....	23.2	.017	\$0.51	.016	\$0.47
1874-80.....	22.4	.020	.54	.019	.52
1881-87.....	21.5	.023	.57	.023	.57
1888-94.....	20.6	.024	.49	.026	.54

Here we note an increase in the average annual per capita product, in twenty-eight years, of substantially sixty-six per cent. The value of that product increased from forty-seven to fifty-four cents, although the simple average price in the nation fell from 70.6 to 50.7 cents a bushel. We note the tendency to which attention was called in preceding chapters for the value of the per capita product to remain a fixed sum. Changes in the amount of the average per capita product are usually accompanied, as in the case of barley, with an opposite change in the average price per bushel or ton. The fact that the value of the per capita product for barley had increased in twenty-eight years from forty-seven to fifty-four cents, shows that the general tendency of prices has been upward, but in this case concealed by the results of over-production.

#### EFFECTS OF CHANGING RAILWAY RATES UPON BARLEY PRICES.

A study of the figures in Tables (c), (f), and (h) will disclose evidence of the effect of changing railway rates upon the price of barley, especially in the seaboard states. This change is less than can be noted in the case of wheat. Changing railway rates do not account for more than a small portion of the decline noted, that decline being due, as has already been mentioned, almost exclusively to the great relative increase in the production of this grain.

## DIFFERENT METHODS OF CALCULATING THE AVERAGE PRICE MOVEMENT.

A glance at Tables (c), (f), and (h) will disclose quite a difference in the comparative results obtained by the several methods employed in calculating the average price movement. The index numbers calculated in accordance with the relative importance of barley in the several states indicate a lesser relative price decline than the numbers calculated by any other method. Those numbers, referred to in the table as calculated by Sauerbeck's method of correction, doubtless more nearly than any other express the relative price movement of barley in the United States. But, as was remarked in the opening chapter, nothing is so difficult to secure as a satisfactory average for a mass of confusing material of a statistical nature. No one method can be implicitly relied upon as giving a true exhibit of the movement of average prices. Each calculated set of index numbers throws its own light upon the subject, and must be studied in connection with all of the others for giving a fairly correct idea of the questions involved. The five sets of index numbers presented in the summaries for the ten, seven, and seventeen states have been calculated to furnish the student of the same with all possible facilities for reaching correct conclusions.

NOTE.—The United States Department of Agriculture did not report the acreage, product, or value of barley for 1889, 1890, 1891, and 1892. In calculating averages for periods including one or more of these years, estimates have been made as follows: The figures for 1889 and 1890 have been assumed to have been the average of 1887 and 1888, and those for 1891 and 1892 the average for 1893 and 1894. Similar estimates have been made for rye, buckwheat, potatoes, hay, and tobacco.

TABLE VI. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the barley raised in the ten states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period was of the average gold value in the same state for the year 1872.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66. . . .	7,350,583	176,414	8,148,231	.694	46.19	28.92	a-6.55	110
1867-70. . . .	9,041,000	216,984	10,704,090	.933	49.33	38.87	b-0.45	148
1871-74. . . .	6,103,000	146,472	5,567,420	.821	38.01	34.19	.....	130
1875-78. . . .	3,130,100	75,122	2,439,747	.740	32.48	30.82	.....	117
1879-82. . . .	4,957,929	118,990	4,043,061	.816	.....	33.98	.....	126
1883-86. . . .	3,711,441	89,075	2,397,449	.646	.....	26.91	.....	103
1887-90. . . .	2,330,000	55,920	1,537,554	.660	.....	27.50	.....	105
1891-94. . . .	3,459,864	83,037	1,644,864	.475	.....	19.81	.....	75
1862-94. . . .	40,083,917	962,014	36,482,416	.760	37.92	31.69	.....	121
1862-66. . . .	7,350,583	176,414	8,148,231	.694	46.19	28.92	.....	110
1867-73. . . .	13,962,000	335,088	14,971,310	.879	44.68	36.67	.....	140
1874-80. . . .	7,003,589	168,086	5,813,898	.792	34.59	33.00	.....	126
1881-87. . . .	6,558,881	157,413	4,761,639	.726	.....	30.25	.....	115
1888-94. . . .	5,208,864	125,013	2,787,338	.535	.....	22.30	.....	85
1876-78. . . .	2,330,100	55,922	1,719,747	.720	30.75	29.98	.....	114
1893-95. . . .	2,554,613	61,311	1,160,551	.454	.....	18.93	.....	72
1862. . . . .	1,512,525	36,300	1,194,894	.544	32.92	22.68	.....	86
1872. . . . .	1,752,000	42,048	1,243,920	.630	29.58	26.24	.....	100
1895. . . . .	824,681	19,792	338,119	.410	.....	17.08	.....	65

## INDIANA.

1862-66. . . .	1,686,134	40,467	1,906,692	.708	47.12	29.50	a-1.98	116
1867-70. . . .	1,892,000	45,408	2,035,400	.848	44.82	35.32	b-0.15	139
1871-74. . . .	1,782,000	42,768	1,671,290	.852	30.08	35.48	.....	139
1875-78. . . .	1,340,000	32,160	1,148,200	.813	35.70	33.88	.....	133
1879-82. . . .	1,761,600	42,279	1,477,824	.839	.....	34.95	.....	137
1883-86. . . .	1,484,956	35,639	834,498	.562	.....	23.42	.....	92
1887-90. . . .	1,522,000	36,528	973,150	.639	.....	26.64	.....	104
1891-94. . . .	608,632	14,607	273,884	.450	.....	18.75	.....	74
1862-94. . . .	12,077,322	289,856	10,320,938	.742	35.61	30.93	.....	121
1862-66. . . .	1,686,134	40,467	1,906,692	.708	47.12	29.50	.....	116
1867-73. . . .	3,135,000	75,240	3,113,790	.825	41.38	34.38	.....	135
1874-80. . . .	2,839,800	68,156	2,502,824	.841	36.72	35.03	.....	137
1881-87. . . .	2,640,756	63,378	1,781,348	.675	.....	28.10	.....	110
1888-94. . . .	1,775,632	42,615	1,016,284	.573	.....	23.85	.....	94
1876-78. . . .	900,000	21,600	761,000	.824	35.23	34.35	.....	135
1893-95. . . .	406,481	9,755	177,808	.438	.....	18.23	.....	71
1862. . . . .	345,767	8,298	280,071	.558	33.75	23.25	.....	91
1872. . . . .	323,000	7,752	222,870	.612	28.75	25.50	.....	100
1895. . . . .	102,165	2,452	40,866	.400	.....	16.66	.....	65



TABLE VI. (a)—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Cur'ncy.	Gold.		
1862.....	1,175,651	28,216	705,390	.413	25.00	17.22	.....	85
1863.....	1,205,042	28,921	1,144,790	.611	39.58	25.45	.....	125
1864.....	1,144,790	27,475	1,568,362	.634	57.08	26.43	.....	130
1865.....	1,058,931	25,414	600,943	.405	23.65	16.88	.....	83
1866.....	1,037,753	24,906	705,672	.505	28.33	21.05	.....	104
1867.....	996,000	23,904	1,274,880	.924	53.33	38.51	.....	140
1868.....	976,000	23,424	1,327,360	1.002	56.67	41.76	.....	205
1869.....	1,250,000	30,000	1,125,000	.742	37.50	30.90	.....	150
1870.....	2,232,000	53,568	1,383,840	.560	25.83	23.33	.....	115
1871.....	2,053,000	49,272	1,067,560	.477	21.67	19.87	.....	98
1872.....	2,073,000	49,752	1,140,150	.488	22.92	20.33	.....	100
1873.....	2,280,000	54,720	2,166,000	.852	39.58	35.51	.....	175
1874.....	2,052,000	49,248	1,990,440	.862	40.42	35.93	.....	177
1875.....	2,900,000	69,600	2,030,000	.620	29.18	25.84	.....	127
1876.....	2,200,000	52,800	1,100,000	.471	20.83	19.60	.....	96
1877.....	2,760,000	66,240	2,152,800	.768	32.50	32.01	.....	157
1878.....	1,936,600	46,478	1,026,398	.530	.....	22.08	.....	109
1879.....	575,000	13,800	339,250	.590	.....	24.58	.....	121
1880.....	1,109,425	26,626	776,597	.700	.....	29.17	.....	143
1881.....	754,000	18,096	648,440	.860	.....	35.83	.....	176
1882.....	942,500	22,620	622,050	.660	.....	27.50	.....	135
1883.....	876,525	21,037	482,089	.550	.....	22.81	.....	112
1884.....	982,000	23,568	500,820	.510	.....	21.25	.....	105
1885.....	1,001,000	24,024	570,534	.570	.....	23.75	.....	117
1886.....	980,000	23,520	509,600	.520	.....	21.66	.....	107
1887.....	723,000	17,352	397,650	.550	.....	22.92	.....	113
1888.....	904,000	21,606	569,541	.630	.....	26.25	.....	129
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	718,690	17,249	287,476	.400	.....	16.67	.....	82
1894.....	647,895	15,549	310,990	.480	.....	20.00	.....	98
1895.....	352,900	8,470	158,805	.450	.....	18.75	.....	92
1862-66....	5,622,167	134,932	4,725,157	.516	35.02	21.50	a-6.96	106
1867-70....	5,454,000	130,896	5,111,080	.747	39.05	31.13	b-0.28	153
1871-74....	8,458,000	202,992	6,364,150	.674	31.35	28.09	.....	138
1875-78....	9,796,600	235,118	6,309,198	.610	26.83	25.44	.....	125
1879-82....	3,380,925	81,142	2,386,337	.706	.....	29.41	.....	145
1883-86....	3,839,525	92,149	2,063,043	.537	.....	22.39	.....	110
1887-90....	3,254,000	78,006	1,934,382	.594	.....	24.77	.....	122
1891-94....	2,733,170	65,596	1,196,932	.438	.....	18.25	.....	90
1862-94....	42,538,387	1,020,921	30,090,279	.617	29.48	25.70	.....	126
1862-66....	5,622,167	134,932	4,725,157	.516	35.02	21.50	.....	106
1867-73....	11,860,000	284,640	9,484,790	.675	33.32	28.14	.....	138
1874-80....	13,533,025	324,793	9,415,485	.655	28.99	27.30	.....	134
1881-87....	6,259,025	150,216	3,731,183	.596	.....	24.84	.....	122
1888-94....	5,264,170	126,340	2,733,664	.519	.....	21.64	.....	106
1876-78....	6,896,600	165,519	4,279,198	.605	25.85	25.20	.....	124
1893-95....	1,719,485	41,268	757,271	.440	.....	18.35	.....	90
1862.....	1,175,651	28,216	705,390	.413	25.00	17.22	.....	85
1872.....	2,073,000	49,752	1,140,150	.488	22.92	20.33	.....	100
1895.....	352,900	8,470	158,805	.450	.....	18.75	.....	92

TABLE VI. (a).—Continued.

## MICHIGAN.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Currency.	Gold.		
1862-66. . . .	1,964,691	47,153	2,083,590	.664	44.19	27.66	a-4.70	92
1867-70. . . .	2,128,000	51,072	2,295,780	.850	44.95	35.42	b-0.66	118
1871-74. . . .	2,086,000	50,064	1,665,060	.715	33.26	29.80	.....	103
1875-78. . . .	3,851,000	92,424	3,010,590	.742	32.57	30.91	.....	100
1879-82. . . .	5,007,960	120,191	3,912,153	.781	.....	32.55	.....	109
1883-86. . . .	4,522,136	108,531	2,711,346	.600	.....	24.98	.....	83
1887-90. . . .	3,662,000	87,888	2,468,738	.674	.....	28.09	.....	94
1891-94. . . .	5,736,472	137,675	2,841,930	.494	.....	20.64	.....	69
1862-94. . . .	28,958,259	694,998	20,980,187	.670	30.20	27.91	.....	93
1862-66. . . .	1,964,691	47,153	2,083,590	.664	44.19	27.66	.....	92
1867-73. . . .	3,751,000	90,024	3,428,390	.762	38.08	31.76	.....	106
1874-80. . . .	6,724,040	161,377	5,281,923	.749	32.73	31.22	.....	104
1881-87. . . .	7,984,056	191,617	5,480,766	.686	.....	28.60	.....	96
1888-94. . . .	8,534,472	204,827	4,714,508	.552	.....	23.02	.....	77
1876-78. . . .	2,891,000	69,384	2,127,390	.717	30.66	29.89	.....	100
1893-95. . . .	4,123,580	98,966	1,960,763	.475	.....	19.81	.....	66
1862. . . . .	407,885	9,789	305,913	.517	31.25	21.53	.....	72
1872. . . . .	554,000	13,296	448,740	.719	33.75	29.94	.....	100
1895. . . . .	1,255,344	30,128	539,798	.430	.....	17.92	.....	60

## WISCONSIN.

1862-66....	4,235,001	101,640	3,931,897	.581	38.68	24.22	a-25.72
1867-70....	4,710,000	113,040	4,560,420	.763	40.34	31.79	b-3.05
1871-74....	5,743,000	137,832	4,525,780	.706	32.84	29.42	.....
1875-78....	12,964,000	311,136	8,017,120	.587	25.77	24.45	.....
1879-82....	20,292,390	487,017	13,299,117	.655	.....	27.31	.....
1883-86....	29,653,272	711,679	14,492,030	.489	.....	20.36	.....
1887-90....	32,730,000	785,520	18,789,836	.574	.....	23.92	.....
1891-94....	47,011,534	1,128,277	20,714,198	.441	.....	18.36	.....
1862-94....	157,339,197	3,776,141	88,330,398	.540	23.39	22.51	.....
1862-66....	4,235,001	101,640	3,931,897	.581	38.68	24.22	.....
1867-73....	9,302,000	223,248	7,935,200	.711	35.54	29.64	.....
1874-80....	23,338,750	560,130	14,843,645	.613	26.50	25.55	.....
1881-87....	46,776,912	1,122,646	25,324,772	.541	.....	22.56	.....
1888-94....	73,686,534	1,768,477	36,294,884	.493	.....	20.52	.....
1876-78....	10,764,000	258,336	5,993,120	.543	23.20	22.62	.....
1893-95....	34,374,250	824,982	14,052,383	.409	.....	17.03	.....
1862.....	905,323	21,728	642,779	.489	29.58	20.38	.....
1872.....	1,546,000	37,104	881,220	.506	23.75	21.07	.....
1895.....	10,868,483	260,844	3,695,281	.340	.....	14.17	.....

TABLE VI. (a)—*Continued.*

## MISSOURI.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66. . . .	913,840	21,932	958,028	.656	43.68	27.34	a-0.91	101
1867-70. . . .	908,000	21,792	1,093,460	.949	50.18	39.54	b-0.07	147
1871-74. . . .	1,013,000	24,312	821,210	.628	33.78	26.15	.....	97
1875-78. . . .	885,000	21,240	705,750	.757	33.23	31.53	.....	117
1879-82. . . .	378,904	9,094	289,228	.763	.....	31.80	.....	118
1883-86. . . .	693,982	16,655	364,433	.525	.....	21.88	.....	81
1887-90. . . .	648,000	15,552	350,002	.540	.....	22.51	.....	83
1891-94. . . .	88,196	2,117	37,794	.429	.....	17.85	.....	66
1862-94. . . .	5,528,922	132,694	4,619,905	.689	34.82	28.70	.....	106
1862-66. . . .	913,840	21,932	958,028	.656	43.68	27.34	.....	101
1867-73. . . .	1,695,000	40,680	1,672,850	.770	41.12	32.08	.....	119
1874-80. . . .	1,207,104	28,970	1,019,648	.773	35.20	32.20	.....	119
1881-87. . . .	1,136,782	27,283	661,583	.582	.....	24.25	.....	90
1888-94. . . .	576,196	13,829	307,796	.534	.....	22.26	.....	83
1876-78. . . .	435,000	10,440	282,750	.634	27.09	26.40	.....	98
1893-95. . . .	58,480	1,404	25,800	.441	.....	18.38	.....	68
1862. . . . .	274,502	6,588	214,111	.537	32.50	22.39	.....	83
1872. . . . .	251,000	6,024	183,230	.648	30.42	26.98	.....	100
1895. . . . .	14,382	345	6,903	.480	.....	20.00	.....	74

## IOWA.

1862. ....	544,939	13,079	295,347	.373	22.58	15.55	.....	100
1863. ....	599,432	14,386	503,523	.540	35.00	22.50	.....	145
1864. ....	584,446	14,027	702,796	.556	50.10	23.19	.....	149
1865. ....	561,068	13,465	317,003	.403	23.54	16.80	.....	108
1866. ....	622,784	14,947	417,265	.497	27.91	20.74	.....	134
1867. ....	1,125,000	27,000	1,305,000	.837	48.33	34.89	.....	225
1868. ....	1,125,000	27,000	1,395,000	.914	51.67	38.08	.....	245
1869. ....	1,203,000	28,872	733,830	.503	25.41	20.94	.....	135
1870. ....	1,227,000	29,448	773,010	.569	26.25	23.70	.....	153
1871. ....	2,110,000	50,640	970,600	.422	19.20	17.58	.....	113
1872. ....	2,194,000	52,656	921,480	.372	17.50	15.52	.....	100
1873. ....	4,500,000	108,000	3,285,000	.655	30.41	27.28	.....	176
1874. ....	4,725,000	113,400	3,638,250	.687	32.08	28.51	.....	184
1875. ....	6,300,000	151,200	3,339,000	.487	22.08	19.57	.....	126
1876. ....	5,800,000	139,200	2,610,000	.423	18.75	17.64	.....	114
1877. ....	5,300,000	127,200	2,120,000	.394	16.66	16.41	.....	106
1878. ....	5,088,000	122,112	1,679,040	.330	.....	13.75	.....	89
1879. ....	4,290,000	102,960	1,930,500	.450	.....	18.75	.....	121
1880. ....	3,887,148	93,292	2,021,317	.520	.....	21.67	.....	140
1881. ....	3,498,000	83,952	2,588,520	.470	.....	30.82	.....	199
1882. ....	4,647,400	111,537	2,182,752	.470	.....	19.57	.....	126
1883. ....	4,638,348	111,320	2,087,257	.450	.....	18.75	.....	121
1884. ....	4,951,000	118,824	1,732,850	.350	.....	14.58	.....	94
1885. ....	5,106,000	122,544	1,991,331	.390	.....	16.25	.....	105
1886. ....	5,045,000	121,081	2,270,250	.450	.....	18.75	.....	121
1887. ....	4,388,000	105,312	1,930,720	.440	.....	18.33	.....	118
1888. ....	4,181,000	100,344	2,299,701	.550	.....	22.91	.....	148
1889. ....	.....	.....	.....	.....	.....	.....	.....	.....
1890. ....	.....	.....	.....	.....	.....	.....	.....	.....
1891. ....	.....	.....	.....	.....	.....	.....	.....	.....
1892. ....	.....	.....	.....	.....	.....	.....	.....	.....
1893. ....	11,599,066	278,376	3,827,632	.330	.....	13.75	.....	89
1894. ....	7,716,458	185,195	3,240,912	.420	.....	17.49	.....	113
1895. ....	12,684,868	304,437	2,917,520	.230	.....	9.58	.....	62

TABLE VI. (a).—Continued.

IOWA—Continued.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66. . .	2,912,669	69,904	2,235,934	.477	31.99	19.87	a-22.14	128
1867-70. . .	4,680,000	112,320	4,206,840	.700	37.45	29.14	b-1.07	188
1871-74. . .	13,529,000	324,696	8,815,330	.577	27.15	24.03	.....	155
1875-78. . .	22,488,000	539,712	9,748,040	.408	18.06	17.02	.....	110
1879-82. . .	16,322,548	391,741	8,723,089	.534	.....	22.26	.....	143
1883-86. . .	19,740,348	473,769	8,081,688	.409	.....	17.06	.....	110
1887-90. . .	17,138,000	411,312	8,460,842	.494	.....	20.57	.....	133
1891-94. . .	38,631,048	927,145	14,137,208	.366	.....	15.25	.....	98
1862-94. . .	135,441,613	3,250,599	64,408,971	.475	19.81	19.81	.....	128
1862-66. . .	2,912,669	69,904	2,235,934	.477	31.99	19.87	.....	128
1867-73. . .	13,484,000	323,616	9,383,920	.588	29.00	24.49	.....	158
1874-80. . .	35,390,148	849,364	17,338,107	.460	20.41	19.16	.....	123
1881-87. . .	32,273,748	774,570	14,783,680	.458	.....	19.09	.....	123
1888-94. . .	51,381,048	1,233,145	20,667,330	.402	.....	16.76	.....	180
1876-78. . .	16,188,000	388,512	6,409,040	.384	16.50	16.02	.....	103
1893-95. . .	32,000,392	768,009	9,986,124	.312	.....	13.00	.....	84
1862.....	544,939	13,079	295,347	.373	22.58	15.55	.....	100
1872.....	2,194,000	52,656	921,480	.372	17.50	15.52	.....	100
1895.....	12,684,868	304,437	2,917,520	.230	.....	9.58	.....	62

MINNESOTA.

1862-66....	639,726	15,353	463,055	.453	30.16	18.88	a-21.92	122
1867-70....	2,556,000	61,344	1,891,340	.579	30.99	24.13	b-3.28	155
1871-74....	3,953,000	94,872	2,460,800	.558	25.94	23.24	.....	150
1875-78....	6,971,800	167,323	3,658,118	.498	21.86	20.75	.....	134
1879-82....	17,061,960	409,487	9,259,982	.543	.....	22.61	.....	146
1883-86....	31,851,040	764,425	13,094,858	.411	.....	17.13	.....	110
1887-90....	30,836,000	740,064	15,969,036	.518	.....	21.58	.....	139
1891-94....	40,217,310	965,216	15,562,296	.387	.....	16.12	.....	104
1862-94....	134,086,836	3,218,084	62,359,485	.458	19.38	19.09	.....	123
1862-66....	639,726	15,353	463,055	.453	30.16	18.88	.....	122
1867-73....	5,555,000	133,320	3,560,320	.537	26.71	22.39	.....	144
1874-80....	13,638,760	327,330	7,381,090	.528	22.55	22.00	.....	142
1881-87....	50,508,040	1,212,193	22,785,368	.451	.....	18.80	.....	121
1888-94....	63,745,310	1,529,888	28,169,652	.442	.....	18.41	.....	119
1876-78....	5,851,800	140,443	2,806,918	.468	19.99	19.48	.....	126
1893-95....	37,545,939	901,102	11,966,096	.319	.....	13.28	.....	86
1862.....	156,412	3,754	76,642	.338	20.42	14.07	.....	91
1872.....	979,000	23,496	411,180	.372	17.50	15.52	.....	100
1895.....	17,437,284	418,495	4,184,948	.240	.....	10.00	.....	64



TABLE VI. (a).—Continued.

## NEBRASKA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS		Percent- ages.	Index Nos.	
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Currency.			Gold.
1862-66. . . .	19,111	459	19,903	.625	43.36	26.02	a-6.81	180
1867-70. . . .	255,700	6,137	173,925	.536	28.34	22.33	b-1.03	162
1871-74. . . .	1,271,000	30,504	832,830	.587	27.30	24.46	.....	170
1875-78. . . .	1,933,750	46,410	647,237	.318	13.95	13.23	.....	93
1879-82. . . .	7,644,680	183,472	3,295,866	.431	.....	17.96	.....	125
1883-86. . . .	14,822,880	355,749	4,960,743	.335	.....	13.94	.....	96
1887-90. . . .	13,192,000	316,608	5,936,656	.450	.....	18.75	.....	130
1891-94. . . .	2,522,486	60,540	863,802	.342	.....	14.27	.....	99
1862-94. . . .	41,661,607	999,879	16,730,962	.397	16.73	16.57	.....	115
1862-66. . . .	19,111	459	19,903	.625	43.36	26.02	.....	181
1867-73. . . .	1,171,700	28,121	701,455	.499	24.94	20.80	.....	140
1874-80. . . .	5,075,430	121,810	2,042,943	.594	16.77	16.41	.....	113
1881-87. . . .	22,756,880	546,165	8,304,323	.365	.....	15.20	.....	105
1888-94. . . .	12,638,486	303,324	5,662,338	.448	.....	18.67	.....	130
1876-78. . . .	1,558,750	37,410	478,487	.299	12.79	12.47	.....	87
1893-95. . . .	2,654,291	63,703	766,233	.289	.....	12.03	.....	83
1862. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1872. . . . .	309,000	7,416	120,510	.346	16.25	14.41	.....	100
1895. . . . .	1,393,048	33,433	334,332	.240	.....	10.00	.....	69

## KANSAS.

1862-66....	30,218	725	29,550	.612	40.76	25.51	a-2.31	115
1867-70....	129,200	3,101	102,311	.624	32.99	26.00	b-0.22	117
1871-74....	1,162,000	27,888	841,450	.649	30.17	27.03	.....	122
1875-78....	6,823,200	163,757	2,635,592	.366	16.09	15.27	.....	69
1879-82....	1,455,804	34,939	760,241	.522	.....	21.76	.....	98
1883-86....	2,514,490	60,348	884,765	.352	.....	14.66	.....	66
1887-90....	1,490,000	35,760	669,666	.449	.....	18.78	.....	85
1891-94....	541,208	12,989	260,058	.481	.....	20.02	.....	90
1862-94....	14,146,120	339,507	6,183,633	.419	18.21	17.46	.....	79
1862-66....	30,218	725	29,550	.612	40.76	25.51	.....	115
1867-73....	856,200	20,549	600,111	.596	29.20	24.84	.....	112
1874-80....	8,203,704	196,889	3,415,564	.397	17.35	16.55	.....	75
1881-87....	3,625,790	87,019	1,467,114	.405	.....	16.86	.....	76
1888-94....	1,430,208	34,325	671,294	.469	.....	19.56	.....	88
1876-78....	6,023,200	144,557	2,170,592	.353	15.08	14.70	.....	66
1893-95....	528,969	12,695	189,453	.358	.....	14.92	.....	67
1862.....	4,953	119	3,219	.447	27.06	18.64	.....	84
1872.....	111,000	2,664	66,600	.532	25.00	22.18	.....	100
1895.....	258,365	6,201	59,424	.230	.....	9.57	.....	43

TABLE VI. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of barley grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of barley in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm values per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dolls. Gold.	AVERAGE VALUE PER BUSHEL IN CENTS.	
		Bushels.	Tons.	Currency.	Gold.		Cur'ncy.	Gold.
1862	180,853	5,327,957	127,871	3,718,366	2,561,954	20.04	69.8	48.1
1863	233,513	5,206,462	124,955	5,301,176	3,408,656	27.28	101.8	65.5
1864	237,054	4,989,303	119,743	7,224,197	3,344,803	27.93	144.8	67.0
1865	217,433	5,105,040	122,521	3,920,306	2,799,008	22.85	76.8	54.8
1866	207,791	4,745,378	113,889	4,337,992	3,223,128	28.30	91.4	67.9
1867	282,221	6,818,000	163,632	8,644,260	6,241,156	38.14	126.8	91.5
1868	280,527	6,678,000	160,289	9,325,206	6,872,678	42.88	139.6	102.9
1868	280,527	6,678,700	160,289	7,574,600	6,241,470	29.66	86.4	71.2
1870	401,042	9,480,200	227,741	6,630,580	5,987,414	26.29	69.9	63.1
1871	361,514	9,776,000	234,624	5,638,620	5,170,615	22.04	57.7	52.9
1872	389,195	10,092,000	242,208	5,639,900	5,002,592	20.65	55.8	49.6
1873	602,506	13,150,000	315,600	11,398,970	10,224,878	32.40	86.7	77.8
1874	607,669	12,082,000	289,968	10,887,830	9,679,281	33.38	90.1	80.1
1875	699,739	16,345,000	392,280	11,282,350	9,996,162	25.48	69.0	61.2
1876	761,603	16,340,000	392,160	8,828,100	8,307,242	27.18	54.0	50.8
1877	747,761	17,726,500	425,436	8,822,115	8,689,782	20.43	49.7	49.0
1878	772,250	19,771,950	474,527	9,387,027	9,387,027	19.80	47.5	47.5
1879	691,100	16,852,200	404,453	9,003,995	.....	22.26	.....	53.4
1880	769,980	17,836,700	428,081	10,843,720	.....	25.33	.....	60.8
1881	863,000	18,063,000	433,512	14,284,880	.....	32.95	.....	79.1
1882	1,112,422	25,512,800	612,307	13,314,303	.....	21.74	.....	52.2
1883	1,141,305	25,362,070	608,690	12,485,403	.....	20.51	.....	49.2
1884	1,189,421	28,133,000	675,192	11,437,690	.....	16.94	.....	40.7
1885	1,350,326	30,644,000	735,456	13,310,380	.....	18.10	.....	43.4
1886	1,273,247	28,695,000	688,680	12,651,380	.....	18.37	.....	44.1
1887	1,282,444	24,111,000	578,664	11,597,740	.....	20.04	.....	48.1
1888	1,337,574	29,290,000	702,960	16,947,191	.....	24.11	.....	57.8
1889	.....	.....	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....	.....	.....
1893	1,639,688	35,948,253	862,758	13,634,850	.....	15.80	.....	37.9
1894	1,615,720	34,826,707	835,841	15,131,633	.....	18.10	.....	43.4
1895	1,499,327	45,191,520	1,084,596	12,275,999	.....	11.32	.....	27.2
1862-66	1,076,644	25,374,140	608,979	24,502,037	15,337,639	25.19	96.6	60.5
1867-70	1,319,682	31,753,900	762,094	32,174,646	25,342,718	33.25	101.3	79.8
1871-74	1,960,884	45,100,000	1,082,400	33,565,320	30,077,366	27.79	74.4	66.7
1875-78	2,981,413	70,183,450	1,684,403	38,319,592	36,380,213	21.59	54.6	51.8
1879-82	3,436,502	78,264,700	1,878,353	47,446,898	.....	25.26	.....	60.6
1883-86	4,954,299	112,834,070	2,708,018	49,884,853	.....	18.42	.....	44.2
1887-90	5,240,036	106,802,000	2,563,248	57,089,862	.....	22.23	.....	53.4
1891-94	6,510,816	141,549,920	3,397,198	57,532,966	.....	16.94	.....	40.6
1862-66	1,076,644	25,374,140	608,979	24,502,037	15,337,639	25.19	96.6	60.5
1867-73	2,672,897	64,771,900	1,554,526	54,852,136	45,740,803	29.42	84.7	70.6
1874-80	5,050,162	116,954,350	2,806,905	69,055,137	65,907,209	23.48	59.0	56.4
1881-87	8,212,165	180,520,870	4,332,501	89,081,776	.....	20.56	.....	49.3
1888-94	10,468,408	224,240,920	5,381,782	103,025,088	.....	19.15	.....	45.9
1862-94	27,480,276	611,862,180	14,684,693	340,516,174	319,092,515	21.73	55.7	52.2
1867-94	26,403,632	586,488,040	14,075,714	316,014,137	303,754,876	21.58	53.9	51.8
1867-78	6,261,979	147,037,350	3,528,897	104,059,558	91,800,297	26.01	70.8	62.4
1879-86	8,390,801	191,098,770	4,586,371	97,331,751	.....	21.22	.....	50.9
1887-94	11,750,852	248,351,920	5,960,446	114,622,828	.....	19.23	.....	46.2
1867-78	6,261,979	147,037,350	3,528,897	104,059,558	91,800,297	26.01	55.7	62.4
1879-82	3,436,502	78,264,700	1,878,353	47,446,898	.....	25.26	.....	60.6
1883-94	16,705,151	361,185,990	8,668,464	164,507,681	.....	18.98	.....	45.5
1867-80	7,723,059	181,726,250	4,361,431	123,907,273	111,648,012	25.60	68.2	61.4
1881-94	18,680,753	404,761,790	9,714,283	192,106,864	.....	19.78	.....	47.5
1876-78	2,281,614	53,838,450	1,292,123	27,037,242	26,384,051	20.42	50.2	49.0
1893-95	4,754,735	115,966,480	2,783,195	41,042,482	.....	14.74	.....	35.4

TABLE VI. (c).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the barley raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates. Per Ton. (3)	Corresponding to Column			Average of Index Numbers for Ten States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
1862-66 .....	25.19	22.65	.544	20.20	122	119	119	119	114
1867-70 .....	33.25	29.38	.705	29.38	161	154	174	148	151
1871-74 .....	27.79	26.92	.646	24.38	135	141	144	134	139
1875-78 .....	21.59	22.06	.529	18.72	105	116	111	112	111
1879-82 .....	25.26	25.42	.610	22.81	122	133	135	128	133
1883-86 .....	18.42	19.22	.461	17.40	89	101	103	95	108
1887-90 .....	22.23	22.70	.545	20.88	108	119	123	111	122
1891-94 .....	16.94	17.14	.411	15.59	82	90	92	85	92
1862-66 .....	25.19	22.65	.544	20.20	122	119	119	119	114
1867-73 .....	29.42	26.77	.642	24.83	142	141	147	133	139
1874-80 .....	23.48	23.65	.568	19.40	114	124	115	119	121
1881-87 .....	20.56	21.40	.514	19.42	100	112	115	107	112
1888-94 .....	19.15	19.47	.467	17.10	93	102	101	106	105
1862-94 .....	21.73	21.73	.521	19.94	105	114	118	112	114
1876-78 .....	20.42	20.87	.501	16.79	99	110	99	106	105
1893-95 .....	14.74	15.31	.367	13.53	71	80	80	77	82
1862 .....	20.04	17.75	.426	16.22	97	93	96	88	87
1872 .....	20.65	19.04	.457	16.92	100	100	100	100	100
1895 .....	11.32	12.64	.303	10.92	55	66	65	66	58

(a) Computed by Sauerbeck's method.



TABLE VI. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the barley raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent-ages.	Index Nos.	
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.			Gold.
1862.....	4,882,778	117,186	5,175,745	.730	44.17	30.43	102	
1863.....	4,882,778	117,187	5,763,678	.759	49.18	31.63	106	
1864.....	3,710,911	89,062	6,469,355	.807	72.64	33.63	112	
1865.....	4,329,406	103,906	4,415,994	.728	42.49	30.35	101	
1866.....	4,459,288	107,023	4,726,845	.788	44.17	32.82	110	
1867.....	3,879,000	93,096	5,702,130	1.061	61.25	44.22	148	
1868.....	3,840,000	92,160	6,835,200	1.311	74.16	54.66	183	
1869.....	4,000,000	96,000	4,554,000	.938	47.43	39.09	131	
1870.....	6,616,000	158,784	5,623,600	.766	35.42	31.90	107	
1871.....	6,946,000	166,704	5,417,880	.713	32.50	29.71	99	
1872.....	6,529,000	156,696	5,288,490	.719	33.75	29.94	100	
1873.....	5,876,000	141,024	6,463,600	.986	45.83	41.11	137	
1874.....	6,463,000	155,112	7,561,710	1.040	48.75	43.33	145	
1875.....	7,800,000	187,200	6,942,000	.789	37.08	32.86	110	
1876.....	6,000,000	144,000	5,478,000	.858	38.04	35.79	120	
1877.....	6,200,000	148,800	4,340,000	.690	29.16	28.73	96	
1878.....	4,917,200	118,013	3,442,040	.700	.....	29.16	97	
1879.....	6,200,000	148,800	4,464,000	.720	.....	30.00	100	
1880.....	8,246,745	197,922	6,844,798	.830	.....	34.58	115	
1881.....	8,412,000	201,888	7,823,160	.930	.....	38.71	129	
1882.....	8,916,720	214,001	7,133,376	.800	.....	33.33	111	
1883.....	8,649,218	207,581	6,486,913	.750	.....	31.25	104	
1884.....	7,957,000	190,968	5,251,620	.660	.....	27.50	92	
1885.....	7,478,000	179,472	5,309,582	.710	.....	29.59	99	
1886.....	7,712,000	185,988	4,704,320	.610	.....	25.42	85	
1887.....	6,733,000	161,592	4,578,440	.680	.....	28.33	95	
1888.....	7,418,000	178,032	5,192,632	.700	.....	29.17	97	
1889.....	.....	.....	.....	.....	.....	.....	.....	
1890.....	.....	.....	.....	.....	.....	.....	.....	
1891.....	.....	.....	.....	.....	.....	.....	.....	
1892.....	.....	.....	.....	.....	.....	.....	.....	
1893.....	5,493,424	131,842	3,296,054	.600	.....	25.00	84	
1894.....	4,546,290	109,111	2,545,922	.560	.....	23.33	78	
1895.....	5,473,215	131,357	4,433,304	.810	.....	33.75	113	
1862-66....	22,265,161	534,364	26,551,617	.761	49.69	31.69	a-35.63	106
1867-70....	18,335,000	440,040	22,714,930	.980	51.62	40.87	b-1.84	137
1871-74....	25,814,000	619,536	24,731,680	.862	39.92	35.83	.....	120
1875-78....	24,917,200	598,013	20,202,040	.742	33.89	31.81	.....	106
1879-82....	31,775,465	762,611	26,265,334	.827	.....	34.44	.....	116
1883-86....	31,796,218	763,109	21,752,435	.684	.....	28.55	.....	95
1887-90....	28,302,000	679,248	19,542,144	.690	.....	28.77	.....	96
1891-94....	20,079,428	481,906	11,683,952	.582	.....	24.24	.....	81
1862-66....	22,265,161	534,364	26,551,617	.761	49.69	31.69	.....	106
1867-73....	37,686,000	904,464	39,884,900	.866	44.08	36.08	.....	121
1874-80....	45,826,945	1,099,847	39,072,548	.798	35.52	33.40	.....	112
1881-87....	55,857,938	1,340,590	41,287,411	.739	.....	30.79	.....	103
1888-94....	41,648,428	999,562	26,647,656	.640	.....	26.66	.....	89
1862-94....	203,284,472	4,878,827	173,444,132	.767	35.56	31.84	.....	106
1867-94....	181,019,311	4,344,463	146,892,515	.758	.....	33.81	.....	113
1876-78....	17,117,200	410,813	13,260,040	.755	32.28	31.47	.....	105
1893-95....	15,512,929	372,310	10,275,280	.662	.....	27.60	.....	92
1862.....	4,882,778	117,186	5,175,745	.730	44.17	30.43	.....	102
1872.....	6,529,000	156,696	5,288,490	.719	33.75	29.94	.....	100
1895.....	5,473,215	131,357	4,433,304	.810	.....	33.75	.....	113



TABLE VI. (d).—Continued.

## PENNSYLVANIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66. . .	3,065,568	73,574	3,573,880	.793	48.58	33.03	a-2.99	102
1867-70. . .	2,333,000	55,992	2,906,040	.939	51.90	39.13	b-0.22	120
1871-74. . .	1,760,000	42,240	1,678,340	.860	39.73	35.84	.....	110
1875-78. . .	2,382,300	57,175	2,066,990	.803	36.15	33.47	.....	103
1879-82. . .	2,226,776	53,443	1,891,958	.850	.....	35.40	.....	109
1883-86. . .	2,141,496	51,396	1,442,694	.674	.....	28.07	.....	86
1887-90. . .	1,886,000	45,264	1,255,218	.666	.....	27.73	.....	85
1891-94. . .	1,263,888	30,333	620,750	.491	.....	20.46	.....	62
1862-66. . .	3,065,568	73,574	3,573,880	.793	48.58	33.03	.....	102
1867-73. . .	3,656,000	87,744	4,147,380	.916	47.27	38.18	.....	117
1874-80. . .	3,937,276	94,495	3,436,908	.834	36.37	34.75	.....	106
1881-87. . .	3,735,296	89,647	2,731,534	.731	.....	30.47	.....	94
1888-94. . .	2,664,888	63,957	1,546,168	.580	.....	24.18	.....	74
1862-94. . .	17,050,028	400,417	15,435,870	.777	37.70	32.38	.....	100
1876-78. . .	1,862,300	44,695	1,536,590	.804	34.38	33.52	.....	103
1893-95. . .	890,787	21,379	416,501	.468	.....	19.48	.....	60
1862. . . . .	636,859	15,285	541,330	.590	35.42	24.40	.....	75
1872. . . . .	453,000	10,872	398,040	.781	36.67	32.53	.....	100
1895. . . . .	258,843	6,212	106,123	.410	.....	17.08	.....	53

## KENTUCKY.

1862-66. . . .	471,857	11,324	639,398	.968	56.46	40.31	a-1.43	150
1867-70. . . .	916,000	21,984	1,152,500	.948	52.42	39.52	b-0.23	147
1871-74. . . .	961,000	23,064	887,350	.833	38.47	34.70	.....	129
1875-78. . . .	1,160,000	27,840	951,450	.760	34.18	31.65	.....	117
1879-82. . . .	1,577,200	37,853	1,253,624	.795	.....	33.12	.....	123
1883-86. . . .	1,715,468	41,171	1,056,891	.616	.....	25.67	.....	95
1887-90. . . .	984,000	23,616	580,492	.590	.....	24.58	.....	91
1891-94. . . .	377,938	9,071	184,108	.487	.....	20.30	.....	75
1862-66. . . .	471,857	11,324	639,398	.968	56.46	40.31	.....	149
1867-73. . . .	1,620,000	38,880	1,752,010	.873	45.06	36.38	.....	135
1874-80. . . .	2,185,800	52,459	1,866,318	.821	35.58	34.21	.....	126
1881-87. . . .	2,770,868	66,501	1,811,927	.654	.....	27.25	.....	101
1888-94. . . .	1,114,938	26,759	636,160	.570	.....	23.77	.....	88
1862-94. . . .	8,163,463	195,923	6,705,813	.745	34.23	31.04	.....	115
1876-78. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1893-95. . . .	277,947	6,671	125,866	.453	.....	18.87	.....	70
1862. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1872. . . . .	243,000	5,832	177,396	.648	30.42	26.98	.....	100
1895. . . . .	88,978	2,135	33,812	.380	.....	15.84	.....	59

TABLE VI. (d).—Continued.

## VIRGINIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent- ages.	Index Nos.	
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.			Gold.
1862-66. ....						a-0.04		
1867-70. ....	45,000	1,080	40,210	.674	37.23	28.07	b-0.01	101
1871-74. ....	26,500	636	21,115	.719	33.20	29.95		108
1875-78. ....								
1879-82. ....	33,925	814	31,565	.930	38.78	38.78		140
1883-86. ....	76,600	1,838	52,994	.692		28.83		104
1887-90. ....	76,000	1,824	52,412	.690		28.73		104
1891-94. ....								
1862-66. ....								
1867-73. ....	65,200	1,565	55,340	.678	35.36	28.25		102
1874-80. ....	6,300	151	5,985	.908	39.64	37.83		136
1881-87. ....	130,525	3,132	99,159	.760		31.66		114
1888-94. ....	56,000	1,344	37,812	.675		28.13		101
1862-94. ....	258,025	6,192	198,296	.722	32.02	30.09		112
1876-78. ....								
1893-95. ....								
1862. ....								
1872. ....	6,600	158	4,950	.665	31.25	27.72		100
1895. ....								

## GEORGIA.

1862-66. ....	11,745	282	21,611	1.313	76.63	54.71	a-0.06	155
1867-70. ....	48,100	1,154	83,870	1.315	72.68	54.80	b-0.03	156
1871-74. ....	28,500	684	40,246	1.274	58.84	53.07		151
1875-78. ....	15,000	360	26,700	1.648	74.17	68.68		195
1879-82. ....	47,300	1,135	52,800	1.116		46.52		132
1883-86. ....	89,023	2,137	91,266	1.025		42.71		121
1887-90. ....	76,000	1,824	58,520	.770		32.08		91
1891-94. ....								....
1862-66. ....	11,745	282	21,611	1.313	76.63	54.71		155
1867-73. ....	67,800	1,627	107,630	1.267	66.17	52.78		150
1874-80. ....	46,090	1,106	56,976	1.175	51.52	48.95		139
1881-87. ....	133,033	3,193	144,876	1.089		45.37		129
1888-94. ....	57,000	1,368	43,890	.770		32.08		91
1862-94. ....	315,668	7,576	375,013	1.084	49.50	45.18		128
1876-78. ....								....
1893-95. ....								....
1862. ....								....
1872. ....	5,100	122	4,845	.843	39.71	35.22		100
1895. ....								....

TABLE VI. (d).—Continued.

## TEXAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66. . . .	60,805	1,459	58,981	.693	40.43	28.86	a-0.39	73
1867-70. . . .	188,000	4,512	250,600	1.034	55.54	43.09	b-0.10	108
1871-74. . . .	213,000	5,112	221,160	.941	43.26	39.21	.....	98
1875-78. . . .	150,000	3,600	132,100	.836	36.69	33.98	.....	85
1879-82. . . .	374,480	8,988	290,715	.776	.....	32.34	.....	81
1883-86. . . .	489,030	11,737	349,626	.715	.....	29.79	.....	75
1887-90. . . .	590,000	14,160	288,784	.489	.....	20.39	.....	51
1891-94. . . .	156,730	3,761	91,798	.536	.....	24.41	.....	61
1862-66. . . .	60,805	1,459	58,981	.693	40.43	28.86	.....	72
1867-73. . . .	338,000	8,112	417,580	1.030	51.48	42.93	.....	107
1874-80. . . .	362,760	8,706	286,619	.758	32.92	31.58	.....	79
1881-87. . . .	820,750	19,698	599,922	.731	.....	30.46	.....	76
1888-94. . . .	639,730	15,354	320,662	.501	.....	20.85	.....	52
1862-94. . . .	2,222,045	53,329	1,683,764	.710	31.46	29.62	.....	74
1876-78. . . .	80,000	1,920	65,600	.800	34.17	33.34	.....	83
1893-95. . . .	132,019	3,168	74,872	.567	.....	23.63	.....	59
1862. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1872. . . . .	51,000	1,224	51,000	.887	41.67	39.96	.....	100
1895. . . . .	53,654	1,288	28,973	.540	.....	22.49	.....	56

## CALIFORNIA.

1862-66....	5,293,442	127,043	6,342,130	1.194	.....	49.92	a-59.46	141
1867-70....	30,163,000	723,012	26,030,690	.863	.....	35.96	b-10.90	102
1871-74....	35,890,991	861,884	31,411,182	.875	.....	36.47	.....	103
1875-78....	43,600,000	1,046,400	33,115,000	.760	.....	31.65	.....	89
1879-82....	48,499,145	1,163,979	31,030,647	.640	.....	26.66	.....	75
1883-86....	55,093,854	1,322,252	35,278,295	.640	.....	26.68	.....	75
1887-90....	64,052,000	1,537,248	35,195,194	.549	.....	22.89	.....	65
1891-94....	56,664,228	1,359,942	24,471,936	.432	.....	17.99	.....	51
1862-66....	5,293,442	127,043	6,342,130	1.194	.....	49.92	.....	141
1867-73....	55,022,991	1,320,552	48,837,692	.888	.....	36.98	.....	104
1874-80....	83,852,745	2,012,466	58,819,369	.701	.....	29.23	.....	83
1881-87....	90,662,254	2,175,894	57,680,073	.636	.....	26.51	.....	75
1888-94....	104,425,228	2,506,205	51,195,810	.490	.....	20.43	.....	58
1862-94....	339,256,660	8,142,160	222,875,074	.657	.....	27.37	.....	77
1876-78....	34,550,000	829,200	24,879,500	.720	.....	30.00	.....	85
1893-95....	47,355,792	1,136,539	19,845,439	.419	.....	17.46	.....	49
1862.....	5,293,442	127,043	6,342,130	1.200	.....	49.94	.....	141
1872.....	7,359,000	176,616	6,255,150	.850	.....	35.41	.....	100
1895.....	19,023,678	456,568	7,609,471	.400	.....	16.67	.....	47

TABLE VI. (c).

An exhibit of the total product in bushels and tons of the barley raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Num- bers.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton,		
					Currency	Gold.	
1862-66 .....	31,168,578	748,046	37,187,617	.838	49.71	34.91	114
1867-70 .....	52,028,100	1,249,674	53,178,840	.912	42.55	37.97	124
1871-74 .....	64,693,991	1,552,656	58,991,073	.868	37.99	36.15	118
1875-78 .....	72,224,500	1,733,388	56,494,280	.763	32.50	31.81	103
1879-82 .....	84,534,291	2,028,823	60,816,643	.719	.....	29.98	98
1883-86 .....	91,401,689	2,193,640	60,024,201	.657	.....	27.36	89
1887-90 .....	95,966,000	2,303,184	56,972,764	.594	.....	24.74	80
1891-94 .....	78,542,212	1,885,013	37,052,544	.472	.....	19.66	64
1862-66 .....	31,168,578	748,046	37,187,617	.838	49.71	34.91	114
1867-73 .....	98,455,991	2,363,944	95,202,562	.889	40.27	37.02	120
1874-80 .....	136,217,916	3,269,230	103,544,723	.740	31.67	30.98	101
1881-87 .....	154,110,664	3,698,655	104,354,902	.677	.....	28.21	92
1888-94 .....	150,606,212	3,614,549	80,428,158	.558	.....	22.22	72
1862-94 .....	570,559,361	13,694,424	420,717,962	.701	30.72	29.19	95
1867-94 .....	539,390,783	12,946,378	383,530,345	.693	29.63	28.86	94
1867-78 .....	188,946,591	4,535,718	160,664,193	.840	37.18	34.99	114
1879-86 .....	175,935,980	4,222,463	120,840,644	.687	.....	28.62	93
1887-94 .....	174,508,212	4,188,197	94,025,308	.537	.....	22.45	73
1867-78 .....	188,946,591	4,535,718	168,664,193	.840	37.18	34.99	114
1879-82 .....	84,534,291	2,028,823	60,816,643	.719	.....	29.98	98
1883-94 .....	205,900,901	6,381,837	154,049,509	.581	.....	24.14	79
1867-80 .....	234,673,907	5,633,174	198,747,285	.805	35.28	33.52	109
1881-94 .....	304,716,876	7,313,204	184,783,060	.605	.....	25.27	82
1876-78 .....	153,609,500	1,286,628	39,741,730	.708	30.89	29.50	96
1893-95 .....	64,169,474	1,540,067	30,737,958	.479	.....	19.96	65
1862 .....	10,813,079	259,515	12,059,205	.768	46.47	32.02	104
1872 .....	14,646,700	351,520	12,180,465	.738	34.66	30.74	100
1895 .....	24,898,368	597,560	12,211,686	.490	.....	20.44	66



TABLE VI. (f).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the barley raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates. (3)	Corresponding to Column			Average of Indices for Seven States.	Acc'rding to Relative Importance. (a)
		Per Ton.	Per Bu.		(1)	(2)	(3)		
1862-66 .....	34.91	42.69	1.024	24.14	114	128	105	121	112
1867-70 .....	37.97	38.89	.933	36.04	124	117	161	124	114
1871-74 .....	36.15	36.22	.879	29.08	118	109	127	117	110
1875-78 .....	31.81	37.80	.907	28.35	103	114	123	116	99
1879-82 .....	29.98	29.82	.716	27.37	98	81	119	111	90
1883-86 .....	27.36	27.39	.657	22.18	89	82	96	93	82
1887-90 .....	24.74	25.15	.603	25.12	80	76	109	83	73
1891-94 .....	19.66	20.38	.489	20.38	64	61	81	66	58
1862-66 .....	34.91	42.69	1.024	24.14	114	128	105	121	112
1867-73 .....	37.02	36.72	.881	29.29	120	101	127	119	112
1874-80 .....	30.98	30.83	.740	24.22	101	81	105	113	93
1881-87 .....	28.21	28.19	.676	24.19	92	85	105	99	85
1888-94 .....	22.22	22.82	.547	21.87	72	68	95	79	66
1862-94 .....	29.19	29.19	.700	24.91	95	88	108	101	88
1876-78 .....	29.50	30.64	.735	21.35	96	92	93	94	77
1893-95 .....	19.96	21.20	.509	20.18	65	64	87	66	59
1862 .....	32.02	41.84	1.004	20.73	104	126	90	106	121
1872 .....	30.74	33.27	.799	23.02	100	100	100	100	100
1895 .....	20.44	22.81	.547	14.70	66	69	64	66	51

(a) Computed by Sauerbeck's method.

TABLE VI. (g).

An exhibit of the total product in bushels and tons of the barley raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Num- bers.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton,		
					Currency	Gold.	
1862-66 .....	56,542,718	1,357,025	61,689,654	.735	45.47	30.62	115
1867-70 .....	83,782,000	2,011,768	85,353,486	.868	42.43	36.18	136
1871-74 .....	109,793,991	2,635,056	92,556,393	.785	35.13	32.71	123
1875-78 .....	142,407,950	3,417,791	94,813,872	.643	27.74	26.78	102
1879-82 .....	162,798,991	3,907,176	108,263,541	.665	.....	27.71	104
1883-86 .....	204,235,759	4,901,658	109,909,054	.538	.....	22.42	84
1887-90 .....	202,768,000	4,866,432	114,062,626	.562	.....	23.44	88
1891-94 .....	220,092,132	5,282,211	94,585,510	.430	.....	17.90	67
1862-66 .....	56,542,718	1,357,025	61,689,654	.735	45.47	30.62	115
1867-73 .....	163,227,891	3,918,470	150,054,698	.817	38.29	34.00	128
1874-80 .....	253,172,266	6,076,135	172,599,860	.660	28.46	27.52	103
1881-87 .....	334,631,534	8,031,156	193,436,678	.579	.....	24.08	90
1888-94 .....	374,847,132	8,996,331	183,453,246	.480	.....	20.39	77
1862-94 .....	1,182,421,541	28,379,117	761,234,136	.608	26.82	25.33	95
1867-94 .....	1,125,878,823	27,022,092	699,544,482	.601	25.89	25.08	94
1867-78 .....	335,983,941	8,064,615	272,723,751	.746	33.82	31.06	117
1879-86 .....	367,034,750	8,808,834	218,172,595	.594	.....	24.77	93
1887-94 .....	422,860,132	10,148,643	208,648,136	.493	.....	20.56	77
1867-78 .....	335,983,941	8,064,615	272,723,751	.746	33.82	31.06	117
1879-82 .....	162,798,991	3,907,176	108,263,541	.665	.....	27.71	104
1883-94 .....	627,095,891	15,050,301	318,557,190	.508	.....	21.19	80
1867-80 .....	416,400,157	9,994,605	322,654,558	.712	32.28	29.66	111
1881-94 .....	709,478,666	17,027,487	376,889,924	.531	.....	22.13	83
1876-78 .....	107,447,950	2,578,751	66,778,972	.598	25.85	24.94	94
1893-95 .....	180,135,958	4,323,262	71,780,440	.399	.....	16.60	62
1862 .....	16,141,036	387,386	15,777,571	.673	40.73	28.06	105
1872 .....	24,738,700	593,728	17,820,365	.639	31.00	26.61	100
1895 .....	70,089,888	1,682,156	24,487,685	.349	.....	14.55	50

TABLE VI. (h).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the barley raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Divis'n (1)	Method for Cor- recting Aver- ages Adopted in this Report. (2)		Allowing for Infla- ence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seven- teen States.	Accord- ing to Relative Import- ance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66 .....	30.62	32.67	.784	22.12	115	125	111	120	112
1867-70 .....	36.18	33.63	.807	32.20	136	129	161	137	125
1871-74 .....	32.71	31.57	.758	26.58	123	121	133	127	118
1875-78 .....	26.78	29.93	.718	23.53	102	114	118	113	101
1879-82 .....	27.71	25.12	.603	22.59	104	96	113	127	105
1883-86 .....	22.42	23.30	.559	19.78	84	89	99	94	90
1887-90 .....	23.44	23.92	.574	22.99	88	91	115	100	92
1891-94 .....	17.90	17.76	.426	16.98	67	68	85	79	75
1862-66 .....	30.62	32.67	.784	22.12	115	125	111	120	112
1867-73 .....	34.00	31.74	.762	27.05	128	121	135	128	120
1874-80 .....	27.52	27.24	.654	21.76	103	104	109	116	102
1881-87 .....	24.08	24.79	.595	21.80	90	95	109	103	95
1888-94 .....	20.39	21.14	.507	19.48	77	89	99	95	83
1862-94 .....	25.33	25.33	.608	22.29	95	97	111	108	98
1876-78 .....	24.94	25.76	.670	19.08	94	99	96	103	87
1893-95 .....	16.60	18.25	.438	16.85	62	70	85	73	70
1862 .....	28.06	30.30	.727	18.98	105	116	96	82	96
1872 .....	26.61	26.15	.628	19.96	100	100	100	100	100
1895 .....	14.55	17.72	.425	12.80	50	68	64	66	59

(a) Computed by Sauerbeck's method.

TABLE VI. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of barley raised in the states of the American Union not included in the ten states given in Tables (a) to (c), and referred to in tables as the Exterior States, together with the total product of barley in said states in bushels and tons, and its total home or farm value in currency and gold and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Area, Acres.	TOTAL PRODUCTION.		Home Value, Currency, Dollars.	Home Value, Gold, Dollars.	Value Per Ton, Gold, Dollars	VALUE PER BUSHEL.	
		Bushels.	Tons.				Cur'cy, Cents.	Gold, Cents.
1862....	245,509	7,057,690	169,384	6,922,993	4,769,942	28.16	98.1	67.6
1863....	323,786	6,951,733	166,842	8,195,197	5,269,512	31.38	117.9	75.8
1864....	303,263	5,727,025	137,449	9,716,826	4,498,890	32.73	169.7	78.6
1865....	324,742	6,286,246	150,870	6,409,988	4,576,731	30.34	102.0	72.8
1866....	284,741	6,538,429	156,922	7,045,706	5,234,960	33.36	107.8	80.1
1867....	848,996	18,909,000	453,816	14,205,870	10,256,638	22.60	75.1	54.2
1868....	656,971	16,217,400	389,217	20,484,725	17,941,587	46.10	126.3	110.6
1869....	669,903	19,884,200	477,221	15,813,309	14,435,560	30.25	79.5	72.6
1870....	707,882	16,806,200	403,349	15,614,004	14,800,799	36.69	92.9	88.1
1871....	816,152	16,942,500	406,620	15,903,157	15,236,401	37.47	93.9	89.9
1872....	1,007,887	16,754,400	402,105	14,197,873	13,300,345	33.08	84.7	79.4
1873....	784,600	18,894,491	453,468	17,934,559	16,981,536	37.45	94.9	89.9
1874....	972,957	20,470,500	491,292	19,095,939	17,931,554	36.50	93.3	87.6
1875....	1,090,103	20,563,600	493,526	18,669,732	17,480,230	35.42	90.8	85.0
1876....	1,004,908	22,370,500	536,892	16,907,010	16,389,875	30.53	75.6	73.3
1877....	866,893	16,714,900	401,158	13,206,529	13,113,732	32.69	79.0	78.5
1878....	1,018,150	22,473,680	539,368	15,096,288	15,096,288	27.99	67.2	67.2
1879....	989,600	23,430,900	562,342	14,710,449	.....	26.16	.....	62.8
1880....	1,073,349	27,328,646	655,887	19,247,022	.....	29.35	.....	70.4
1881....	1,967,510	23,098,330	554,360	19,577,633	.....	35.32	.....	84.8
1882....	1,159,681	23,441,126	562,587	17,453,712	.....	31.02	.....	74.4
1883....	1,237,704	24,774,027	594,577	16,935,020	.....	28.48	.....	68.3
1884....	1,419,397	33,070,000	793,680	18,341,480	.....	23.11	.....	55.5
1885....	1,379,033	27,716,000	665,184	19,557,316	.....	29.40	.....	70.6
1886....	1,379,710	30,733,000	737,592	19,189,130	.....	26.02	.....	62.4
1887....	1,619,509	32,701,000	784,824	17,866,650	.....	22.77	.....	54.6
1888....	1,658,808	34,594,000	830,256	20,724,841	.....	24.96	.....	59.9
1889....	.....	.....	.....	.....	.....	.....	.....	.....
1890....	.....	.....	.....	.....	.....	.....	.....	.....
1891....	.....	.....	.....	.....	.....	.....	.....	.....
1892....	.....	.....	.....	.....	.....	.....	.....	.....
1893....	1,580,683	33,921,242	814,110	15,004,536	.....	18.54	.....	44.5
1894....	1,554,882	26,573,758	637,770	12,002,494	.....	18.82	.....	45.2
1895....	1,800,646	41,881,224	1,005,149	17,036,414	.....	16.95	.....	40.7
1862-66 ..	1,481,941	32,561,123	781,467	38,290,710	24,350,035	31.16	117.6	74.8
1867-70 ..	2,883,752	71,816,800	1,723,603	68,117,908	57,434,584	33.32	92.1	80.0
1871-74 ..	3,581,596	73,061,891	1,753,485	67,131,528	63,449,636	36.18	91.9	86.8
1875-78 ..	3,980,054	82,122,680	1,970,944	63,879,559	62,080,125	31.50	77.8	75.6
1879-82 ..	4,327,140	97,299,002	2,335,176	70,988,816	.....	30.40	.....	73.0
1883-86 ..	5,415,844	116,293,027	2,791,033	74,022,946	.....	26.52	.....	63.6
1887-90 ..	6,556,634	134,590,000	3,230,160	77,182,982	.....	23.90	.....	57.3
1891-94 ..	6,271,130	120,990,000	2,903,760	54,194,060	.....	18.67	.....	44.8
1862-66 ..	1,481,941	32,561,123	781,467	38,290,710	24,350,035	31.16	117.6	74.8
1867-73 ..	5,492,391	124,408,191	2,985,796	114,153,497	102,952,866	34.48	91.8	82.8
1874-80 ..	7,015,960	153,352,726	3,680,465	116,932,969	113,968,950	30.97	76.2	74.3
1881-87 ..	9,299,544	195,535,483	4,692,804	128,920,941	.....	27.48	.....	65.9
1888-94 ..	11,208,255	222,879,000	5,349,096	113,510,392	.....	21.22	.....	50.9
1862-94 ..	34,498,091	728,734,523	17,489,628	511,808,509	483,703,184	27.65	70.2	66.4
1867-94 ..	33,016,150	696,173,400	16,708,161	473,517,799	459,353,149	27.49	68.0	66.0
1867-78 ..	10,445,402	227,001,371	5,448,032	197,128,995	182,964,345	33.59	86.8	80.6
1879-86 ..	9,742,984	213,592,029	5,126,208	145,011,762	.....	28.29	.....	67.9
1887-94 ..	12,827,764	255,580,000	6,133,921	131,377,042	.....	21.42	.....	51.4
1867-78 ..	10,445,402	227,001,371	5,448,032	197,128,995	182,964,345	33.59	86.8	80.6
1879-82 ..	4,327,140	97,299,002	2,335,176	70,988,816	.....	30.40	.....	73.0
1883-94 ..	18,243,608	371,873,027	8,924,953	205,399,988	.....	23.02	.....	55.2
1867-80 ..	12,508,351	277,760,917	6,666,261	231,086,466	216,921,816	32.54	83.2	78.1
1881-94 ..	20,507,799	418,412,483	10,041,900	242,431,333	.....	24.14	.....	57.9
1876-78 ..	2,889,951	61,559,080	1,477,418	45,209,827	44,599,895	30.19	73.4	72.5
1893-95 ..	4,936,211	102,376,224	2,457,029	44,133,444	.....	17.69	.....	43.1



TABLE VI. (j).

An exhibit by years and certain periods of years of the acres of barley raised in the United States, its average yield per acre in bushels, together with its total farm or home value in dollars currency and its average home or farm value per bushel and ton, gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Bushels.	AVERAGE		Value Per Ton in Dolls., Gold.
		Bushels.	Tons.			Cur'ncy.	Gold.	
1862.....	426,362	12,385,647	297,255	10,641,359	29.0	86.0	59.1	24.64
1863.....	557,299	12,158,195	291,797	13,496,373	21.8	111.0	71.4	29.74
1864.....	540,317	10,716,328	257,192	16,941,023	19.8	158.1	73.1	30.49
1865.....	542,175	11,391,286	273,391	10,330,294	21.0	90.7	64.8	26.98
1866.....	492,532	11,283,807	270,811	11,383,698	22.9	100.9	75.0	31.23
1867.....	1,131,217	25,727,000	617,448	22,850,130	22.7	88.8	64.1	26.72
1868.....	937,498	22,896,100	549,506	29,809,931	24.4	130.2	108.4	45.16
1869.....	1,025,795	28,652,200	687,653	23,387,909	27.9	81.6	72.2	30.07
1870.....	1,108,924	26,295,400	631,090	22,244,584	23.7	84.5	79.1	32.94
1871.....	1,177,666	26,718,500	641,244	21,541,777	22.6	80.6	76.4	31.82
1872.....	1,397,082	26,846,400	644,313	19,837,773	19.2	73.9	68.2	28.41
1873.....	1,387,106	32,044,491	769,068	29,333,529	23.1	91.5	84.9	35.38
1874.....	1,580,626	32,552,500	781,260	29,983,769	20.6	92.1	84.8	35.34
1875.....	1,789,902	36,908,600	885,806	29,952,082	20.6	81.3	74.4	31.02
1876.....	1,766,511	38,710,500	929,052	25,735,110	21.9	66.4	63.8	26.58
1877.....	1,614,654	34,441,400	826,594	22,028,644	21.3	64.0	63.3	26.38
1878.....	1,790,400	42,245,630	1,013,895	24,483,315	23.6	58.0	58.0	24.14
1879.....	1,680,700	40,283,100	966,795	23,714,444	24.0	.....	58.9	24.53
1880.....	1,843,329	45,165,346	1,083,968	30,090,742	24.5	.....	66.6	27.76
1881.....	1,967,510	41,161,330	987,872	33,862,513	20.9	.....	82.3	34.28
1882.....	2,272,103	48,953,926	1,174,894	30,768,015	21.5	.....	68.7	26.19
1883.....	2,379,009	50,136,097	1,203,267	29,420,423	21.1	.....	52.9	24.45
1884.....	2,608,818	61,203,000	1,468,872	29,779,170	23.5	.....	48.7	20.27
1885.....	2,729,359	58,360,000	1,400,640	32,867,696	21.4	.....	56.0	23.46
1886.....	2,652,957	59,428,000	1,426,272	31,840,510	22.4	.....	53.6	22.32
1887.....	2,901,953	56,812,000	1,363,488	29,464,390	19.6	.....	51.9	21.61
1888.....	2,996,382	63,884,000	1,533,216	37,672,032	21.3	.....	59.0	24.57
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	3,220,371	69,869,495	1,676,868	28,729,386	21.7	.....	41.1	17.13
1894.....	3,170,602	61,400,465	1,473,611	27,134,127	19.4	.....	44.2	18.41
1895.....	3,299,973	87,072,744	2,089,746	29,312,413	26.4	.....	33.7	14.03
1862-66.....	2,558,685	57,935,263	1,390,446	62,792,747	22.6	108.4	68.5	28.54
1867-70.....	4,203,434	103,570,700	2,485,697	98,292,554	24.6	94.9	79.9	33.30
1871-74.....	5,542,480	118,161,891	2,835,885	100,696,848	21.3	85.0	79.1	32.94
1875-78.....	6,961,467	152,306,130	3,655,347	102,199,151	21.9	67.1	64.6	26.94
1879-82.....	7,763,642	175,563,702	4,213,529	118,435,714	22.6	.....	67.4	28.11
1883-86.....	10,370,143	229,127,097	5,499,651	123,907,799	22.1	.....	54.1	22.36
1887-90.....	11,796,670	241,392,000	5,793,408	134,272,844	20.5	.....	55.6	23.17
1891-94.....	12,781,946	262,539,920	6,300,958	111,727,026	20.5	.....	42.2	17.73
1862-66.....	2,558,685	57,935,263	1,390,446	62,792,747	22.6	108.4	68.5	28.54
1867-73.....	8,165,288	189,180,091	4,540,322	169,005,633	23.2	89.3	78.6	32.75
1874-80.....	12,066,122	270,307,076	6,487,370	185,988,106	22.4	68.8	66.6	27.73
1881-87.....	17,511,709	376,054,353	9,025,305	218,002,717	21.5	.....	58.0	24.15
1888-94.....	21,676,663	447,119,920	10,730,878	216,535,480	20.6	.....	48.4	20.02
1862-94.....	61,978,467	1,340,596,703	32,174,321	852,324,683	21.6	63.6	59.9	24.95
1867-94.....	59,419,782	1,282,661,440	30,783,875	789,531,936	21.6	61.6	59.5	24.79
1867-78.....	16,707,381	374,038,721	8,976,929	301,188,553	22.4	80.5	73.5	30.61
1879-86.....	22,133,785	404,690,799	9,712,580	242,343,513	18.3	.....	59.9	24.95
1887-94.....	24,578,616	503,931,920	12,094,366	245,999,870	20.6	.....	48.8	20.34
1867-78.....	16,707,381	374,038,721	8,976,929	301,188,553	22.4	80.5	73.5	30.61
1879-82.....	7,763,642	175,563,702	4,213,529	118,435,714	22.6	.....	67.4	28.11
1883-94.....	34,948,759	733,059,017	17,593,417	369,907,609	21.0	.....	50.4	21.03
1867-80.....	20,231,410	459,487,167	11,027,692	354,993,739	22.2	77.3	71.5	29.79
1881-94.....	39,188,372	823,174,273	19,756,183	434,538,197	20.8	.....	52.8	21.94
1876-78.....	5,171,565	115,397,530	2,769,541	72,247,069	22.3	62.6	61.5	25.63
1893-95.....	9,690,946	218,342,704	5,240,225	85,175,926	22.5	.....	39.0	16.23

TABLE VI. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per bushel and ton of the barley raised in the ten Mississippi Valley states, in the Exterior States (including all excepting the ten Mississippi Valley states), and in the nation, together with the weight in tons and its value in dollars gold of the per capita product of barley in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER BUSHEL IN CENTS.			GOLD VALUES PER TON IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862.....	97	120	99	48.1	67.6	59.1	20.04	28.16	24.64	.....	.....
1863.....	132	95	120	65.5	75.8	71.4	27.28	31.38	29.74	.....	.....
1864.....	135	99	123	67.0	78.6	73.1	27.93	32.73	30.49	.....	.....
1865.....	111	92	109	54.8	72.8	64.8	22.85	30.34	26.98	.....	.....
1866.....	137	101	126	67.9	80.1	75.0	28.30	33.36	31.23	.....	.....
1867.....	185	68	108	91.5	54.2	64.1	38.14	22.60	26.72	.018	.47
1868.....	208	139	192	102.9	110.6	108.4	42.88	46.10	45.16	.018	.58
1869.....	144	91	121	71.2	72.6	72.2	29.66	30.25	30.07	.018	.46
1870.....	127	111	133	63.1	88.1	79.1	26.29	36.69	32.94	.016	.48
1871.....	107	113	128	52.9	89.9	76.4	22.04	37.47	31.82	.016	.49
1872.....	100	100	100	49.6	79.4	68.2	20.65	33.08	28.41	.016	.45
1873.....	157	113	143	77.8	89.9	84.9	32.40	37.45	35.38	.049	.62
1874.....	162	110	142	80.1	87.6	84.8	33.38	36.50	35.34	.018	.63
1875.....	123	107	125	61.2	85.0	74.4	25.48	35.42	31.02	.021	.62
1876.....	103	92	107	50.8	73.3	63.8	21.18	30.53	26.58	.021	.51
1877.....	99	99	106	49.0	78.5	63.3	20.43	32.69	26.38	.018	.45
1878.....	96	85	97	47.5	67.2	58.0	19.80	27.99	24.14	.022	.51
1879.....	108	79	99	53.4	62.8	58.9	22.26	26.16	24.53	.020	.48
1880.....	123	89	112	60.8	70.4	66.6	25.33	29.35	27.76	.022	.60
1881.....	160	107	138	79.1	84.8	82.3	32.95	35.32	34.28	.019	.66
1882.....	105	94	106	52.2	74.4	62.9	21.74	31.02	26.19	.023	.60
1883.....	99	86	99	49.2	68.3	58.7	20.51	28.48	24.45	.022	.56
1884.....	82	70	82	40.7	55.5	48.7	16.94	23.11	20.27	.027	.54
1885.....	88	89	95	43.4	70.6	56.0	18.10	29.40	23.46	.025	.59
1886.....	89	79	90	44.1	62.4	53.6	18.37	26.02	22.32	.023	.56
1887.....	97	69	87	48.1	54.6	51.9	20.04	22.77	21.61	.023	.50
1888.....	117	75	99	57.8	59.9	59.0	24.11	24.96	24.57	.026	.63
1889.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	77	56	69	37.9	44.5	41.1	15.80	18.54	17.13	.025	.43
1894.....	88	57	74	43.4	45.2	44.2	18.10	18.82	18.41	.022	.40
1895.....	55	51	57	27.2	40.7	33.7	11.32	16.95	14.03	.030	.42
1862-66.....	122	102	100	60.5	74.8	68.5	25.12	31.16	28.54	.....	.....
1867-70.....	161	101	117	79.8	80.0	79.9	33.25	33.32	33.30	.017	.50
1871-74.....	135	110	116	66.7	86.8	79.1	27.79	36.18	32.94	.017	.55
1875-78.....	105	95	95	51.8	75.6	64.6	21.59	31.50	26.94	.020	.52
1879-82.....	122	92	91	60.6	73.0	67.4	25.26	30.40	28.11	.021	.58
1883-86.....	89	80	79	44.2	63.6	54.1	18.42	26.52	22.36	.025	.56
1887-90.....	108	72	81	53.4	57.3	55.6	22.23	23.90	23.17	.025	.56
1891-94.....	82	56	62	40.6	44.8	42.2	16.94	18.67	17.73	.024	.42
1862-66.....	122	102	100	60.5	74.8	68.5	25.19	31.16	28.54	.....	.....
1867-73.....	142	104	115	70.6	82.8	78.6	29.42	34.48	32.75	.017	.51
1874-80.....	114	94	98	56.4	74.3	66.6	23.48	30.97	27.73	.020	.54
1881-87.....	100	83	85	49.3	65.9	58.0	20.56	27.48	24.15	.023	.57
1888-94.....	93	64	70	45.9	50.9	48.4	19.15	21.22	20.02	.024	.49
1862-94.....	105	84	88	52.2	66.4	59.9	21.73	27.65	24.95	.....	.....
1867-94.....	105	83	87	51.8	66.0	59.5	21.58	27.49	24.79	.021	.52
1867-78.....	126	102	108	62.4	80.6	73.5	26.01	33.59	30.61	.018	.52
1879-86.....	103	86	88	50.9	67.9	59.9	21.22	28.29	24.95	.023	.57
1887-94.....	93	65	72	46.2	51.4	48.8	19.23	21.42	20.34	.025	.49
1867-78.....	126	102	108	62.4	80.6	73.5	26.01	33.59	30.61	.018	.52
1879-82.....	122	92	99	60.6	73.0	67.4	25.26	30.40	28.11	.021	.58
1883-94.....	92	70	74	45.5	55.2	50.4	18.98	23.02	21.03	.024	.51
1867-80.....	124	98	105	61.4	78.1	71.5	25.60	32.54	29.79	.018	.52
1881-94.....	96	73	71	47.5	57.9	52.8	19.78	24.14	21.94	.024	.53
1876-78.....	99	91	90	49.0	72.5	61.5	20.42	30.19	25.63	.020	.49
1893-95.....	711	53	57	35.4	43.1	39.0	14.74	17.69	16.23	.026	.42

## CHAPTER VII.

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### RYE.

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#### SMALL RELATIVE USE OF RYE IN THE UNITED STATES.

Over more than one-half the extent of Europe rye is the staple of human food. In Russia, of the area sown to the six leading cereals, corn, oats, wheat, rye, barley, and buckwheat, 35.5 per cent is sown to rye, and rye constitutes over fifty per cent of the bread supply consumed by the people. The percentage of land under cultivation to rye in Germany, Austria, and Scandinavia, and the greater share of the other nations of continental Europe, is substantially the same as in Russia. In those nations rye makes up, as in Russia, one-half, or more than one-half, of the staple for bread among the people. It is far different in the United States. In the last thirty-five years rye has constituted only 1.1 per cent of the weight of these same crops. Wheat is the great staple bread material of the United States. Emigrants from Europe, accustomed to rye, use that grain for bread for a few years, then change to wheat. As a result of this change the demand for rye as a material for human food continues to be small. Its annual average value is less than twenty-five cents for each individual in the nation. A change in the average price per bushel of rye may make an appearance in the index numbers showing price movement as great as in the corresponding numbers for wheat or corn or hay, but in reality, when consideration is given to the relative importance of the several grains, that change exerts but a small influence. The detailed facts for rye are, however, presented the same as for most of the other cereals. As throwing some light upon the causes affecting the average prices of rye in the United States, attention is first called to the decreased average value of the annual per capita product of rye, as the same is indicated by the data gathered in this report.



## AMOUNT AND VALUE OF THE AVERAGE PER CAPITA PRODUCT OF RYE.

Table (k) exhibits for the several years and periods the per capita product of rye, as the same is shown by the returns of the United States Department of Agriculture. Table (j) gives an exhibit of the average annual yield per acre of rye according to those same agricultural returns. The latter shows an apparent decrease in the average yield per acre for rye of not far from ten per cent. Making use of this average yield per acre to calculate the true weight and value of the annual per capita national product of rye, we have the following result:

TABLE A.

A comparative exhibit of the average yield per acre in bushels, and the weight and value in gold, of the average annual per capita product of rye in the United States, from 1867 to 1894, inclusive, according to the returns of the United States Department of Agriculture, and as the same appears when allowance is made for the varying returns of this average yield per acre.

YEARS.	Average Yield Per Acre in Bushels.	PER CAPITA PRODUCT.			
		According to Government Reports.		AS CORRECTED.	
		Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	13.6	.013	\$0.39	.0122	\$0.37
1874-80.....	14.3	.013	.30	.0114	.26
1881-87.....	11.6	.013	.28	.0117	.31
1888-94.....	12.5	.012	.22	.0122	.23

It will be noted from this table that the great decline in the average annual gold value of the per capita national product of rye took place before, and not after, 1873. The value of this product, which was thirty-seven cents in the seven years 1867 to 1873, was only twenty-six cents in the next seven years. Here was a fall of eleven cents, or nearly thirty per cent. The fall from the seven-year period, 1874 to 1880, to the last seven-year period was only three cents, or thirteen per cent. This fact clearly demonstrates that whatever the cause for the decline in the average price of rye shown in the other tables, that cause was operative before 1873, and was more active then than after that given date.

## CHANGES IN THE AVERAGE VALUE OF RYE.

The actual decline in the values of rye in the several groups of states is shown by the following corrected average values per bushel in the several seven-year periods.



TABLE B.

A comparative exhibit of the corrected average gold values per bushel of rye in three groups of ten, seven, and seventeen selected states whose detailed statistics are given in this report.

YEARS.	AVERAGE VALUE PER BUSHEL IN CENTS.		
	Ten States.	Seven States.	Seventeen States.
1862-66 .....	48.8	74.8	61.8
1867-73 .....	58.3	85.5	61.9
1874-80 .....	53.7	71.8	62.7
1881-87 .....	52.8	67.6	60.2
1888-94 .....	47.3	57.1	52.2

This table shows a great and continuous fall in price in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California from 1867 to 1895. In the ten states there is only a very insignificant decline when comparing the last seven years' average with that of the war period of 1862 to 1866. That decline is only about three per cent. The decline in the price of rye in the seven states, the seventeen states, and in the nation, shown in Tables (j) and (k), has been caused, therefore, by factors not especially active in the Mississippi Valley. It cannot have been produced by any universal cause, such as a change in currency or the use of the precious metals. The only factor that affects prices in one section of the country and not in all is a change in the charge for transportation over the railroads from the Mississippi Valley to the seaboard. The effect of that change upon relative price is shown in Tables (c), (f), and (h), which contain two columns exhibiting the relative price movement for rye in these three groups after the effect of changing railway rates and similar local cause has been eliminated from the general price movement shown in the other columns of the same and other tables of this chapter. The following summaries by seven-year periods are here presented of the price movement for rye in these groups of states after the effect of changing railway rates have been eliminated.

TABLE C.

A comparative exhibit of the relative price movement for rye in the groups of ten, seven, and seventeen selected states, after the effect of changing railway rates and other local causes have been eliminated. This relative movement is expressed by the index numbers for the several groups.

YEARS.	INDEX NUMBERS.		
	Ten States.	Seven States.	Seventeen States.
1862-66 .....	93	103	99
1867-73 .....	125	126	126
1874-80 .....	123	121	122
1881-87 .....	115	119	118
1888-94 .....	110	115	113

These figures show a great relative advance in rye in the period 1867-73 when compared with the preceding or war period. This marks the effect upon American prices of rye of the great crop failure in Europe in 1867, to which attention has been called in the chapter devoted to wheat. From the relative price that prevailed in the period 1867 to 1873 there has been a subsequent fall, but taking all facts affecting prices into consideration, as is done in the calculation for the foregoing index numbers, it is seen that prices of 1888 to 1894 were relatively higher than in the war period of 1862 to 1867, twenty-five years before. The fall in rye prices from 1867 to date has simply restored the earlier average of price that prevailed in the United States before and during the war. Reduced railroad rates from the Mississippi Valley lowered the average prices for rye in the seaboard states, but left the old price materially enhanced in such states as Iowa, Illinois, and Minnesota, as can be seen by reference to Table (a).

#### INDEX NUMBERS BY DIFFERENT METHODS.

For some of the agricultural products the index numbers secured by different methods vary quite a considerable. In others, as with rye, there is a close agreement. This agreement adds greatly to the reliance that may be placed upon these numbers as expressions of the movement of the average prices of this grain. The following exhibit shows how closely the index numbers for the corrected gold average values of this report agree with those calculated according to relative importance.

TABLE D.

A comparative exhibit for rye in the seventeen selected states of this report of the index number for corrected average values, and those numbers calculated according to the relative importance of the crop in the several states.

YEARS.	INDEX NUMBERS.	
	For Corrected Average Values.	According to Relative Importance of Crop in Several States
1862-66.....	101	102
1867-73.....	118	119
1874-80.....	102	102
1881-87.....	91	97
1888-94.....	85	86

The decline of price here shown is, from the earlier to the later period, about sixteen per cent.

NOTE.—In the government reports for rye, as for barley, buckwheat, potatoes, hay, and tobacco, there are no detailed figures given for the years 1889 to 1892. For this report estimates have been included, giving to the years 1889 to 1890 an average of the figures reported for 1887 and 1888. The figures here used for 1891 and 1892 are the average of those reported for 1893 and 1894. The government reports give no figures for rye and other grain in Georgia, Virginia, and Texas before 1866. In Kentucky and Nebraska before 1864 and in California none before 1867, with the exception of 1862. This fact and the high price of 1866 causes the states named to show a different apparent price movement than would be manifest did we possess full returns for these states before the years mentioned.

TABLE VII. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the rye raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska and Kansas, together with the total home or farm value of the same in currency and its average home or farm value per bushel and ton in gold and currency, and simple index numbers, showing the percentage which the average gold value each year and period was of the average gold value in the same states for the year 1872.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66...	3,925,717	109,920	3,483,522	.560	31.69	20.00	a7.05	87
1867-70...	3,676,000	102,928	3,812,280	.818	37.04	29.23	b0.29	126
1871-74...	1,648,000	46,144	1,260,060	.698	27.31	24.93	.....	108
1875-78...	2,419,800	67,754	1,433,288	.566	21.15	20.20	.....	87
1879-82...	2,420,080	67,762	1,767,659	.730	.....	26.08	.....	113
1883-86...	1,714,240	47,999	987,024	.576	.....	20.56	.....	89
1887-90...	2,548,000	71,344	1,477,942	.580	.....	20.72	.....	89
1891-94...	4,118,044	115,305	1,891,538	.459	.....	16.40	.....	70
1862-94...	22,469,881	629,156	16,113,313	.616	25.61	22.01	.....	95
1862-66...	3,925,717	109,920	3,483,522	.560	31.69	20.00	.....	87
1867-73...	4,932,000	138,096	4,754,820	.791	34.43	28.26	.....	122
1874-80...	4,487,080	125,638	2,928,507	.625	23.31	22.31	.....	97
1881-87...	3,110,040	87,081	1,954,654	.628	.....	22.43	.....	98
1888-94...	6,015,044	168,421	2,991,900	.497	.....	17.77	.....	77
1876-78...	2,198,800	61,566	1,266,088	.561	20.56	20.05	.....	87
1893-95...	2,885,276	80,788	1,317,583	.457	.....	16.31	.....	71
1862.....	1,079,040	30,213	647,424	.414	21.43	14.77	.....	64
1872.....	414,000	11,592	302,220	.647	26.07	23.12	.....	100
1895.....	826,254	23,135	371,814	.450	.....	16.07	.....	69

## INDIANA.

1862-66....	1,969,937	55,158	1,792,768	.574	32.50	20.51	a4.84	100
1867-70....	1,911,000	53,508	1,714,560	.703	32.04	25.10	b0.23	121
1871-74....	1,627,000	45,556	1,158,620	.639	25.43	22.81	.....	110
1875-78....	1,825,000	51,100	1,140,950	.597	22.33	21.32	.....	103
1879-82....	1,320,978	36,988	979,077	.741	.....	26.47	.....	129
1883-86....	1,225,743	34,321	694,454	.566	.....	20.23	.....	98
1887-90....	1,934,000	54,152	1,062,918	.550	.....	19.63	.....	95
1891-94....	3,600,676	100,819	1,559,524	.433	.....	15.47	.....	75
1862-94....	15,414,334	431,602	10,102,871	.577	23.41	20.62	.....	100
1862-66....	1,969,937	55,158	1,792,768	.574	32.50	20.51	.....	100
1867-73....	3,141,000	87,948	2,567,490	.671	29.19	23.97	.....	116
1874-80....	3,030,038	84,841	2,017,307	.638	23.78	22.80	.....	110
1881-87....	2,237,683	62,655	1,372,324	.613	.....	21.90	.....	106
1888-94....	5,035,676	141,000	2,352,982	.467	.....	16.69	.....	81
1876-78....	1,495,000	41,860	893,450	.583	21.34	20.81	.....	101
1893-95....	2,434,287	68,160	1,046,021	.430	.....	15.35	.....	74
1862.....	444,695	12,451	235,688	.365	18.93	13.04	.....	63
1872.....	410,000	11,480	266,500	.577	23.21	20.59	.....	100
1895.....	633,949	17,751	266,259	.420	.....	15.00	.....	73



TABLE VII. (a)—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent- ages.	Index Nos.	
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.						Cur'ney.
1862	981,322	27,477	421,968	.296	15.36	10.58	67	
1863	883,190	24,729	653,561	.476	26.43	16.99	107	
1864	850,071	23,802	862,822	.470	36.25	16.78	106	
1865	833,069	23,326	410,977	.352	17.62	12.58	79	
1866	666,455	18,661	526,500	.587	28.21	20.96	133	
1867	639,000	17,892	760,410	.859	42.50	30.69	130	
1868	645,000	18,060	599,850	.685	33.21	24.48	156	
1869	675,000	18,900	432,000	.527	22.86	18.83	113	
1870	2,235,000	62,580	1,341,000	.542	21.43	19.35	122	
1871	2,190,000	61,320	1,226,400	.514	20.00	18.34	110	
1872	2,211,000	61,908	1,105,500	.443	17.86	15.84	100	
1873	2,078,000	58,184	1,205,240	.520	20.71	18.58	111	
1874	2,036,000	57,008	1,445,560	.631	25.36	22.54	142	
1875	2,600,000	72,800	1,586,000	.540	21.79	19.30	122	
1876	2,580,000	72,240	1,496,400	.546	20.71	19.49	123	
1877	2,844,000	79,632	1,422,000	.492	17.86	17.59	111	
1878	2,511,000	70,308	1,029,510	.410	.....	14.64	92	
1879	4,050,000	113,400	2,470,500	.610	.....	21.79	137	
1880	3,049,860	85,396	2,226,398	.730	.....	26.08	165	
1881	2,775,000	77,700	2,525,250	.910	.....	32.50	205	
1882	6,538,000	183,064	3,661,280	.560	.....	20.00	126	
1883	5,099,640	142,790	2,753,806	.540	.....	19.29	122	
1884	4,896,000	137,088	2,301,120	.470	.....	16.79	106	
1885	2,302,000	64,456	1,220,176	.530	.....	18.93	113	
1886	2,527,000	70,756	1,187,690	.470	.....	16.79	106	
1887	2,296,000	64,288	1,125,040	.490	.....	17.50	110	
1888	4,098,000	114,744	2,213,076	.540	.....	19.30	122	
1889	.....	.....	.....	.....	.....	.....	.....	
1890	.....	.....	.....	.....	.....	.....	.....	
1891	.....	.....	.....	.....	.....	.....	.....	
1892	.....	.....	.....	.....	.....	.....	.....	
1893	1,759,698	49,272	721,476	.410	.....	14.64	92	
1894	2,213,419	61,975	951,770	.430	.....	15.36	97	
1895	1,700,287	47,603	680,115	.400	.....	14.29	90	
1862-66	4,214,107	117,995	2,875,828	.426	24.37	15.21	a24.93	96
1867-70	4,194,000	117,432	3,133,260	.610	26.68	21.78	b 0.63	137
1871-74	8,515,000	238,420	4,982,700	.525	20.90	18.75	.....	118
1875-78	10,535,000	294,980	5,533,910	.497	18.76	17.78	.....	111
1879-82	16,412,860	459,560	10,883,428	.663	.....	23.68	.....	149
1883-86	14,824,640	415,090	7,462,792	.503	.....	17.98	.....	113
1887-90	12,788,000	358,064	6,676,232	.522	.....	18.65	.....	119
1891-94	7,946,234	222,495	3,346,492	.421	.....	15.04	.....	95
1862-94	79,429,841	2,224,036	44,894,642	.534	20.19	19.08	.....	120
1862-66	4,214,107	117,995	2,875,828	.426	24.37	15.21	.....	96
1867-73	10,673,000	298,844	6,670,400	.538	22.32	19.22	.....	121
1874-80	19,670,860	550,784	11,676,368	.571	21.20	20.38	.....	128
1881-87	26,433,640	740,142	14,774,362	.559	.....	19.96	.....	126
1888-94	18,438,234	516,271	8,897,684	.483	.....	17.23	.....	108
1876-78	7,935,000	222,180	3,947,910	.485	17.77	17.33	.....	109
1893-95	5,673,404	158,855	2,353,361	.....	.....	14.81	.....	93
1862	981,322	27,477	421,968	.296	15.36	10.58	.....	67
1872	2,211,000	61,908	1,105,500	.443	17.86	15.84	.....	100
1895	1,700,287	47,608	680,115	.400	.....	14.29	.....	90

TABLE VII. (a).—Continued.

## MICHIGAN.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66. . . .	2,249,588	62,989	2,080,434	.584	33.03	20.84	a5.06	89
1867-70. . . .	2,440,000	68,320	2,366,040	.760	34.63	27.15	b0.43	116
1871-74. . . .	915,000	25,620	693,520	.680	27.07	24.28	.....	104
1875-78. . . .	1,092,000	30,576	721,628	.631	23.60	22.54	.....	96
1879-82. . . .	1,054,016	29,513	765,022	.726	.....	25.92	.....	110
1883-86. . . .	1,004,705	28,132	585,727	.583	.....	20.82	.....	89
1887-90. . . .	1,124,000	31,472	662,588	.589	.....	21.05	.....	90
1891-94. . . .	6,235,840	174,603	2,803,456	.450	.....	16.06	.....	68
1862-94. . . .	16,115,149	451,225	10,678,415	.577	23.67	20.60	.....	88
1862-66. . . .	2,249,588	62,989	2,080,434	.584	33.03	20.84	.....	89
1867-73. . . .	3,127,000	87,556	2,874,880	.747	32.83	26.69	.....	114
1874-80. . . .	1,829,306	51,221	1,246,809	.640	24.34	22.84	.....	97
1881-87. . . .	1,832,415	51,308	1,165,898	.636	.....	22.72	.....	97
1888-94. . . .	7,076,840	193,151	3,310,394	.468	.....	16.70	.....	71
1876-78. . . .	817,600	22,893	485,128	.578	21.19	20.66	.....	88
1893-95. . . .	4,609,174	129,057	1,998,230	.433	.....	15.48	.....	66
1862. . . . .	494,197	13,838	266,866	.372	19.29	13.29	.....	57
1872. . . . .	228,000	6,384	168,720	.656	26.43	23.44	.....	100
1895. . . . .	1,491,254	41,755	596,502	.400	.....	14.29	.....	61

## WISCONSIN.

1862-66....	4,761,405	133,320	3,567,564	.473	26.76	16.88	a22.06	93
1867-70....	4,437,000	124,236	3,581,980	.633	28.83	22.60	b 1.58	125
1871-74....	4,767,000	133,476	3,045,590	.571	22.82	20.39	.....	113
1875-78....	8,921,200	249,794	4,608,892	.493	18.45	17.62	.....	98
1879-82....	9,961,120	278,911	6,903,757	.693	.....	24.75	.....	137
1883-86....	9,017,530	252,491	4,388,877	.487	.....	17.38	.....	96
1887-90....	11,900,000	333,200	6,982,476	.587	.....	20.96	.....	116
1891-94....	16,516,974	462,475	7,102,300	.430	.....	15.36	.....	85
1862-94....	70,282,229	1,967,903	40,181,436	.534	20.42	19.09	.....	106
1862-66....	4,761,405	133,320	3,567,564	.473	26.76	16.88	.....	93
1867-73....	8,113,000	227,164	5,776,590	.589	25.43	21.03	.....	116
1874-80....	15,149,670	424,191	8,812,952	.562	20.78	20.06	.....	111
1881-87....	16,053,180	449,489	9,001,314	.561	.....	20.03	.....	111
1888-94....	26,204,974	733,739	13,023,016	.497	.....	17.75	.....	98
1876-78....	7,581,200	212,274	3,697,892	.475	17.42	16.98	.....	94
1893-95....	12,466,898	349,073	5,024,094	.409	.....	14.59	.....	80
1862.....	1,066,241	29,855	522,458	.338	17.50	12.06	.....	67
1872.....	1,193,000	33,404	680,010	.506	20.36	18.06	.....	100
1895.....	4,208,411	117,836	1,472,944	.350	.....	12.50	.....	69

TABLE VII. (a).—Continued.  
MISSOURI.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOL- LARS.		Percent- ages.	Index Nos.	
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.						Cur'ncy.
1862-66. . . .	1,250,831	35,023	976,031	.471	27.87	16.83	a4.66	75
1867-70. . . .	1,127,000	31,556	954,910	.664	30.26	23.72	b0.23	105
1871-74. . . .	1,814,000	50,792	1,186,680	.586	23.36	20.94	.....	93
1875-78. . . .	2,732,000	76,496	1,477,320	.516	19.31	18.44	.....	82
1879-82. . . .	2,491,240	69,755	1,600,533	.643	.....	22.95	.....	102
1883-86. . . .	2,234,851	62,576	1,176,235	.526	.....	18.80	.....	84
1887-90. . . .	2,174,000	60,872	1,066,172	.490	.....	17.51	.....	78
1891-94. . . .	1,022,366	28,626	470,970	.461	.....	16.45	.....	73
1862-94. . . .	14,846,288	415,696	8,908,851	.547	21.43	19.55	.....	87
1862-66. . . .	1,250,831	35,023	976,031	.471	27.87	16.83	.....	75
1867-73. . . .	2,487,000	69,636	1,828,330	.611	26.26	21.80	.....	97
1874-80. . . .	4,523,080	126,646	2,632,848	.561	20.79	20.04	.....	89
1881-87. . . .	3,926,011	109,929	2,176,150	.554	.....	19.80	.....	88
1888-94. . . .	2,659,366	74,462	1,295,492	.487	.....	17.40	.....	77
1876-78. . . .	2,132,000	59,696	1,069,320	.489	17.91	17.46	.....	77
1893-95. . . .	757,416	21,208	331,516	.438	.....	15.63	.....	69
1862. . . . .	351,914	9,854	158,361	.310	16.07	11.07	.....	49
1872. . . . .	406,000	11,368	288,260	.630	25.36	22.49	.....	100
1895. . . . .	246,233	6,895	96,031	.390	.....	13.93	.....	62

## IOWA.

1862. . . . .	111,266	3,116	44,506	.276	14.25	9.84	.....	66
1863. . . . .	122,392	3,427	72,211	.379	21.07	13.55	.....	90
1864. . . . .	119,333	3,341	109,786	.425	32.86	15.21	.....	102
1865. . . . .	119,333	3,341	70,406	.421	21.07	15.05	.....	101
1866. . . . .	116,946	3,275	80,693	.512	24.63	18.31	.....	123
1867. . . . .	550,000	15,400	572,000	.750	37.14	26.82	.....	181
1868. . . . .	577,000	16,156	490,450	.626	30.36	22.37	.....	150
1869. . . . .	540,000	15,120	280,800	.434	18.57	15.30	.....	103
1870. . . . .	518,000	14,504	300,440	.523	20.71	18.70	.....	126
1871. . . . .	533,000	14,924	271,830	.467	18.21	16.70	.....	112
1872. . . . .	533,000	14,924	250,510	.416	16.78	14.89	.....	100
1873. . . . .	517,000	14,476	248,160	.430	17.14	15.38	.....	135
1874. . . . .	485,000	13,580	305,550	.560	22.50	20.00	.....	103
1875. . . . .	650,000	18,200	175,500	.239	9.64	8.54	.....	57
1876. . . . .	350,000	9,800	185,500	.498	18.93	17.81	.....	119
1877. . . . .	.....	.....	.....	.....	.....	.....	.....	85
1878. . . . .	431,600	12,085	151,060	.350	.....	12.50	.....	129
1879. . . . .	365,040	10,221	197,122	.540	.....	19.29	.....	149
1880. . . . .	1,379,932	38,638	855,558	.619	.....	22.14	.....	192
1881. . . . .	1,242,000	34,776	993,600	.800	.....	28.57	.....	129
1882. . . . .	1,540,080	43,122	770,040	.537	.....	19.19	.....	103
1883. . . . .	1,463,076	40,966	629,123	.429	.....	15.33	.....	91
1884. . . . .	1,434,000	40,152	544,920	.379	.....	13.57	.....	110
1885. . . . .	1,746,000	48,888	803,246	.460	.....	16.43	.....	101
1886. . . . .	1,700,000	47,600	714,000	.420	.....	15.00	.....	106
1887. . . . .	1,381,000	38,668	607,640	.439	.....	15.71	.....	120
1888. . . . .	1,647,000	46,116	823,673	.500	.....	17.86	.....	.....
1889. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1890. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1891. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1892. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1893. . . . .	1,133,739	33,140	485,333	.409	.....	14.61	.....	98
1894. . . . .	1,301,706	36,448	598,785	.460	.....	16.43	.....	110
1895. . . . .	1,554,970	43,539	482,041	.309	.....	11.07	.....	74
1862-66. . . .	589,270	16,500	377,602	.404	22.88	14.43	a8.84	97
1867-70. . . .	2,185,000	61,180	1,643,690	.584	26.88	20.87	b0.26	140
1871-74. . . .	2,068,000	57,904	1,076,050	.467	18.58	16.67	.....	112
1875-78. . . .	1,431,600	40,085	512,060	.336	12.77	12.00	.....	81
1879-82. . . .	4,527,052	126,757	2,816,320	.621	.....	22.21	.....	149
1883-86. . . .	6,343,076	177,606	2,691,289	.424	.....	15.15	.....	102
1887-90. . . .	6,056,000	169,568	2,862,626	.472	.....	16.88	.....	114
1891-94. . . .	4,970,890	139,185	2,168,236	.436	.....	15.57	.....	104



TABLE VII. (a)—Continued.

IOWA—Continued.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOL- LARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-94....	28,170,888	788,785	14,147,873	.502	17.94	17.93	.....	120
1862-66....	589,270	16,500	377,602	.404	22.88	14.43	.....	97
1867-73....	3,768,000	105,504	2,414,190	.523	22.88	18.68	.....	126
1874-80....	3,661,572	102,524	1,870,290	.493	18.24	17.61	.....	118
1881-87....	10,506,156	294,172	5,062,569	.481	.....	17.22	.....	116
1888-94....	9,645,890	270,085	4,423,222	.458	.....	16.38	.....	110
1876-78....	781,600	21,885	336,560	.416	15.38	14.88	.....	100
1893-95....	4,040,415	113,132	1,566,159	.387	.....	13.84	.....	93
1862.....	111,266	3,116	44,506	.276	14.25	9.84	.....	66
1872.....	533,000	14,924	250,510	.416	16.78	14.89	.....	100
1895.....	1,554,970	43,539	482,041	.309	.....	11.07	.....	74

## MINNESOTA.

1862-66....	675,259	18,908	426,192	.398	22.54	14.22	a3.59	92
1867-70....	1,155,000	32,340	984,800	.669	30.45	23.90	b0.33	154
1871-74....	448,000	12,544	240,740	.494	19.67	17.64	.....	114
1875-78....	599,800	16,794	314,558	.501	18.73	17.89	.....	115
1879-82....	965,650	27,038	555,334	.575	.....	20.54	.....	132
1883-86....	1,904,867	53,336	862,576	.453	.....	16.17	.....	104
1887-90....	1,176,000	32,928	592,412	.504	.....	17.99	.....	115
1891-94....	4,516,098	126,451	1,900,886	.421	.....	15.03	.....	97
1862-94....	11,440,674	320,339	5,883,498	.479	18.37	17.09	.....	110
1862-66....	675,259	18,908	426,192	.398	22.54	14.22	.....	92
1867-73....	1,458,000	40,824	1,145,990	.635	28.07	22.67	.....	146
1874-80....	1,121,800	31,410	602,928	.518	19.19	18.50	.....	113
1881-87....	2,655,517	74,354	1,289,610	.486	.....	17.34	.....	112
1888-94....	5,530,098	154,843	2,418,778	.437	.....	15.62	.....	100
1876-78....	449,800	12,594	226,058	.490	17.95	17.50	.....	113
1893-95....	3,743,637	104,822	1,366,408	.365	.....	13.04	.....	84
1862.....	155,323	4,349	43,490	.193	10.00	6.89	.....	44
1872.....	75,000	2,100	36,750	.435	17.50	15.52	.....	100
1895.....	1,485,588	41,596	415,965	.280	.....	10.00	.....	64

## NEBRASKA.

1862-66....	5,905	165	6,191	.640	37.52	22.88	a5.16	180
1867-70....	28,800	807	17,236	.470	21.40	16.77	b0.47	132
1871-74....	87,300	2,444	51,650	.531	21.13	18.96	.....	149
1875-78....	1,574,500	44,086	406,600	.247	9.22	8.81	.....	69
1879-82....	2,934,400	82,163	1,382,627	.471	.....	16.83	.....	133
1883-86....	3,941,080	110,350	1,301,195	.330	.....	11.79	.....	93
1887-90....	4,922,000	137,816	2,131,302	.433	.....	15.46	.....	122
1891-94....	2,941,558	82,364	1,154,120	.392	.....	14.01	.....	110
1862-94....	16,435,543	460,195	6,450,951	.391	14.02	13.95	.....	110
1862-66....	5,905	165	6,191	.640	37.52	22.88	.....	180
1867-73....	84,100	2,355	45,236	.444	19.21	15.85	.....	121
1874-80....	3,184,100	89,155	1,138,747	.351	12.77	12.54	.....	99
1881-87....	6,188,890	173,289	2,287,205	.370	.....	13.20	.....	104
1888-94....	6,972,558	195,231	2,973,572	.426	.....	15.23	.....	120
1876-78....	1,524,500	42,686	380,600	.244	8.92	8.70	.....	68
1893-95....	2,069,773	57,953	756,758	.366	.....	13.06	.....	103
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	12,300	344	4,920	.355	14.30	12.68	.....	100
1895.....	598,994	16,772	179,698	.300	.....	10.71	.....	84



TABLE VII. (a)—Continued.

## KANSAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOL- LARS.			Percent- ages.	Index Nos.
				Per Bushel, Gold.	Per Ton.			
	Bushels.	Tons.			Currency.	Gold.		
1862-66. . . .	141,102	3,669	138,959	.639	37.87	24.58	a2.30	80
1867-70. . . .	235,000	6,110	240,640	.798	39.38	30.56	b0.03	100
1871-74. . . .	276,000	7,176	312,360	1.012	43.53	38.92	.....	127
1875-78. . . .	472,200	12,277	354,312	.708	28.86	27.27	.....	89
1879-82. . . .	176,647	4,593	162,429	.919	.....	35.36	.....	115
1883-86. . . .	92,720	2,411	67,391	.726	.....	27.95	.....	91
1887-90. . . .	136,000	3,536	88,222	.648	.....	24.95	.....	81
1891-94. . . .	135,976	3,535	108,832	.800	.....	30.79	.....	100
1862-94. . . .	1,665,645	43,307	1,473,145	.791	34.02	30.43	.....	99
1862-66. . . .	141,102	3,669	138,959	.639	37.87	24.58	.....	80
1867-73. . . .	391,000	10,166	373,000	.762	39.69	29.31	.....	96
1874-80. . . .	703,647	18,295	636,981	.861	34.82	33.12	.....	108
1881-87. . . .	178,920	4,652	140,801	.787	.....	30.27	.....	100
1888-94. . . .	250,976	6,525	183,404	.730	.....	28.11	.....	91
1876-78. . . .	232,200	6,037	181,512	.762	30.07	29.32	.....	95
1893-95. . . .	100,233	2,606	80,212	.801	.....	30.80	.....	100
1862. . . . .	44,158	1,148	22,521	.352	19.62	13.52	.....	44
1872. . . . .	34,000	884	30,600	.798	34.62	30.71	.....	100
1895. . . . .	32,245	838	25,796	.800	.....	30.78	.....	100

TABLE VII. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of rye grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of rye in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars, Gold.	AVERAGE VALUE PER BUSHEL IN CENTS	
		Bushels.	Tons.	Currency.	Gold.		Currency	Gold.
1862.....	257,611	4,688,711	131,284	2,343,259	1,614,505	12.30	50.0	34.4
1863.....	278,095	4,192,205	117,382	3,309,196	2,127,813	18.13	78.9	50.8
1864.....	278,955	3,722,424	104,228	4,323,395	2,001,732	19.21	116.1	53.8
1865.....	251,290	3,772,266	105,623	2,546,972	1,818,538	17.22	67.5	48.2
1866.....	225,788	3,288,980	92,692	3,082,890	2,290,587	24.87	93.7	69.6
1867.....	318,869	5,047,000	141,316	5,958,150	4,301,784	30.44	118.1	85.2
1868.....	308,273	5,172,800	144,839	4,995,137	3,681,416	25.42	96.6	71.2
1869.....	328,098	5,033,000	140,924	3,471,270	2,860,326	20.30	69.0	56.9
1870.....	386,489	6,006,400	168,179	3,859,321	3,484,967	20.72	64.2	58.0
1871.....	343,602	5,746,000	160,888	3,478,650	3,189,922	19.83	60.5	55.5
1872.....	337,055	5,563,300	155,772	3,160,900	2,803,718	18.00	56.8	50.4
1873.....	391,060	5,797,000	162,316	3,518,320	3,155,933	19.44	60.7	54.4
1874.....	387,092	5,680,000	159,040	4,105,470	3,649,762	22.95	72.3	64.3
1875.....	477,300	7,595,000	212,660	4,550,000	4,031,300	18.95	59.9	53.1
1876.....	602,797	9,825,000	275,100	5,346,250	5,030,821	18.29	54.4	51.2
1877.....	598,147	10,131,000	283,668	4,951,410	4,877,139	17.19	48.9	48.1
1878.....	752,500	13,289,900	372,117	5,122,270	5,122,270	13.71	38.5	38.5
1879.....	787,600	17,977,980	380,183	7,987,764	.....	21.01	.....	58.8
1880.....	649,241	9,421,992	263,816	6,341,065	.....	24.03	.....	67.4
1881.....	657,400	8,824,000	247,072	7,654,110	.....	30.99	.....	86.8
1882.....	1,052,939	17,913,790	501,586	9,180,147	.....	18.28	.....	51.2
1883.....	1,113,220	16,361,232	458,115	9,353,403	.....	16.71	.....	46.8
1884.....	1,128,499	16,818,200	470,904	7,006,510	.....	14.88	.....	41.7
1885.....	923,796	11,443,000	320,404	5,476,080	.....	17.11	.....	47.8
1886.....	925,686	11,725,000	328,300	5,300,590	.....	16.16	.....	45.2
1887.....	847,082	9,879,000	276,612	4,650,630	.....	16.83	.....	47.2
1888.....	1,152,161	16,067,000	449,876	8,759,411	.....	19.50	.....	54.6
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	1,086,534	13,765,359	385,430	5,773,310	.....	15.00	.....	42.0
1894.....	1,007,163	14,281,139	399,872	6,297,413	.....	15.70	.....	44.0
1895.....	945,216	13,477,770	377,378	4,839,464	.....	12.82	.....	36.0
1862-66....	1,291,739	19,664,586	550,609	15,605,712	9,853,175	17.90	79.3	50.1
1867-70....	1,341,729	21,250,200	595,258	18,283,878	14,328,493	24.07	86.0	67.4
1871-74....	1,458,809	22,786,300	638,016	14,263,340	12,799,335	20.06	62.6	56.2
1875-78....	2,430,744	40,840,900	1,143,545	19,969,930	19,061,530	16.67	48.9	46.6
1879-82....	3,147,180	49,737,762	1,392,657	31,163,086	.....	22.38	.....	62.6
1883-86....	4,091,201	56,347,232	1,577,723	25,436,583	.....	16.12	.....	45.1
1887-90....	3,998,486	51,892,000	1,452,976	26,820,082	.....	18.47	.....	51.7
1891-94....	4,187,394	56,092,996	1,570,604	24,141,446	.....	15.38	.....	43.0
1862-66....	1,291,739	19,664,586	550,609	15,605,712	9,853,175	17.90	79.3	50.1
1867-73....	2,413,446	38,365,500	1,074,234	28,441,748	23,478,066	21.86	74.1	61.2
1874-80....	4,254,677	69,520,872	1,946,584	38,404,229	37,040,121	19.03	55.2	53.3
1881-87....	6,648,622	92,964,022	2,602,993	46,921,470	.....	18.03	.....	50.5
1888-94....	7,338,798	98,105,996	2,746,968	46,310,898	.....	16.86	.....	47.2
1862-94....	21,947,282	318,620,976	8,921,388	175,684,057	163,603,730	18.34	51.1	51.3
1867-94....	20,655,543	298,956,390	8,370,779	160,078,345	153,750,555	18.37	53.6	51.4
1867-78....	5,231,282	84,886,400	2,376,819	52,517,148	46,189,358	19.43	61.9	54.4
1879-86....	7,238,381	106,084,994	2,970,380	56,599,669	.....	19.05	.....	53.3
1887-94....	8,185,880	107,984,996	3,023,580	50,961,528	.....	16.86	.....	47.2
1867-78....	5,231,282	84,886,400	2,376,819	52,517,148	46,189,358	19.43	61.9	54.4
1879-89....	3,147,180	49,737,762	1,392,657	31,163,086	.....	22.38	.....	62.6
1883-94....	12,277,081	164,332,228	4,601,303	76,398,111	.....	16.60	.....	46.5
1867-80....	6,668,123	107,886,372	3,020,818	66,845,977	60,518,187	20.03	62.0	56.1
1881-94....	13,987,420	191,070,018	5,349,961	93,232,368	.....	17.43	.....	48.7
1876-78....	1,953,444	33,245,900	930,885	15,419,930	15,030,230	16.16	46.4	45.2
1893-95....	3,038,913	41,524,268	1,162,680	16,910,187	.....	14.54	.....	40.7

TABLE VII. (c).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the rye raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates Per Ton. (3)	According to Column.			Average of Index Numbers for Ten States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	17.90	17.43	.488	13.72	99	95	93	100	91
1867-70....	24.07	22.49	.630	20.59	133	122	140	125	126
1871-74....	20.06	20.13	.564	16.44	111	109	112	111	110
1875-78....	16.67	16.79	.470	12.48	92	91	85	80	88
1879-82....	22.38	22.69	.635	21.94	124	123	149	123	124
1883-83....	16.12	17.04	.477	15.87	90	92	108	93	88
1887-90....	18.47	18.74	.525	16.80	103	102	114	101	103
1891-94....	15.38	15.30	.428	15.30	85	83	104	84	83
1862-66....	17.90	17.43	.488	13.72	99	95	93	100	91
1867-73....	21.86	20.82	.583	18.40	121	113	125	116	117
1874-80....	19.03	19.17	.537	18.08	106	104	123	103	102
1881-87....	18.03	18.87	.528	16.96	100	102	115	102	99
1888-94....	16.86	16.89	.473	13.17	94	92	110	93	92
1862-94....	18.34	18.42	.516	17.67	102	100	120	100	93
1876-78....	16.16	16.54	.463	14.62	90	90	99	90	84
1893-95....	14.54	14.67	.411	13.57	81	80	92	80	79
1862.....	12.30	11.84	.332	10.25	68	64	70	59	62
1872.....	18.00	18.43	.516	14.70	100	100	100	100	100
1895.....	12.82	13.36	.374	10.88	71	72	74	71	72

(a) Computed by Sauerbeck's method.

TABLE VII. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product, in bushels and tons, of the rye raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers, showing the percentage which the average gold value each year or period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percentages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862.....	5,385,268	150,788	4,092,804	.524	27.14	18.70	.....	66
1863.....	5,385,268	150,788	5,762,237	.688	38.21	24.57	.....	87
1864.....	5,205,759	145,761	8,875,819	.789	60.89	28.19	.....	100
1865.....	5,309,874	148,676	5,416,071	.728	36.43	26.01	.....	92
1866.....	5,309,874	148,676	6,424,947	.899	43.21	32.11	.....	114
1867.....	5,100,000	142,800	7,650,000	1.080	53.57	38.68	.....	137
1868.....	4,845,000	135,630	6,637,650	1.010	48.93	36.06	.....	128
1869.....	4,748,000	132,944	4,890,440	.849	36.78	30.31	.....	108
1870.....	2,230,000	62,440	2,163,100	.876	34.64	31.28	.....	111
1871.....	2,341,000	65,548	2,060,089	.807	31.46	28.82	.....	102
1872.....	1,872,000	52,416	1,666,080	.789	31.79	28.19	.....	100
1873.....	1,853,000	51,884	1,593,580	.771	30.71	27.55	.....	98
1874.....	1,834,000	51,352	1,687,280	.818	32.86	29.21	.....	100
1875.....	2,450,000	68,600	2,107,000	.762	30.71	27.21	.....	104
1876.....	2,760,000	77,280	2,263,200	.771	29.29	27.55	.....	97
1877.....	3,300,000	92,400	2,376,000	.709	25.71	25.33	.....	98
1878.....	3,774,000	105,672	2,188,920	.580	.....	20.72	.....	90
1879.....	2,770,300	77,569	2,077,725	.750	.....	26.79	.....	95
1880.....	3,611,471	101,121	2,937,521	.830	.....	29.64	.....	105
1881.....	2,820,000	78,960	2,622,600	.930	.....	33.22	.....	118
1882.....	2,876,400	80,539	2,186,064	.760	.....	27.14	.....	96
1883.....	2,708,816	75,707	1,946,748	.720	.....	25.71	.....	91
1884.....	2,650,000	74,200	1,639,500	.630	.....	22.50	.....	80
1885.....	2,658,000	74,424	1,781,042	.670	.....	23.93	.....	85
1886.....	2,890,000	80,920	1,705,100	.590	.....	21.07	.....	75
1887.....	2,533,000	70,924	1,545,130	.610	.....	21.80	.....	77
1888.....	2,724,000	76,272	1,715,986	.630	.....	22.50	.....	80
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	3,424,586	95,888	2,157,489	.630	.....	22.50	.....	80
1894.....	3,610,299	101,088	1,949,561	.540	.....	19.29	.....	68
1895.....	4,328,144	122,188	2,077,509	.480	.....	17.00	.....	60
1862-66....	26,596,043	744,689	30,571,878	.725	41.05	25.88	a-36.02	92
1867-70....	16,923,000	473,844	21,341,190	.969	45.04	34.61	b-1.17	123
1871-74....	7,900,000	221,200	7,007,020	.797	31.68	28.46	.....	101
1875-78....	12,284,000	343,952	8,935,120	.694	25.98	24.79	.....	89
1879-82....	12,078,171	338,189	9,883,010	.818	.....	29.23	.....	104
1883-86....	10,901,816	305,251	7,102,390	.652	.....	23.27	.....	83
1887-90....	10,514,000	294,392	6,522,232	.620	.....	22.15	.....	79
1891-94....	14,069,770	393,954	8,214,100	.584	.....	20.85	.....	74
1862-66....	26,596,043	744,689	30,571,878	.725	41.05	25.88	.....	92
1867-73....	22,980,000	643,692	26,660,930	.922	41.42	32.93	.....	113
1874-80....	20,499,771	573,994	15,697,646	.737	27.35	26.31	.....	93
1881-87....	19,131,216	535,674	13,456,184	.703	.....	25.12	.....	89
1888-94....	22,050,770	617,422	13,191,202	.598	.....	21.37	.....	76
1862-94....	111,266,800	3,115,471	99,577,840	.739	31.96	26.39	.....	94
1876-78....	9,834,000	275,352	6,828,120	2.370	24.80	24.18	.....	87
1893-95....	11,363,029	318,165	6,184,559	.544	.....	19.44	.....	70
1862.....	5,385,268	150,788	4,092,804	.524	27.14	18.70	.....	66
1872.....	1,872,000	52,416	1,666,080	.789	31.79	28.19	.....	100
1895.....	4,328,144	122,188	2,077,509	.480	.....	17.00	.....	60



TABLE VII. (d).—Continued.

## PENNSYLVANIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percentages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66....	33,669,661	942,750	40,684,208	.761	43.15	27.22	a-48.36	100
1867-70....	22,788,000	638,064	27,278,900	.947	42.75	33.83	b-2.24	124
1871-74....	12,938,000	362,264	11,092,530	.777	30.62	27.74	.....	102
1875-78....	13,517,620	378,493	10,641,800	.751	28.12	26.84	.....	98
1879-82....	16,900,525	473,215	13,328,721	.789	.....	28.17	.....	103
1883-86....	15,982,595	447,513	10,265,009	.642	.....	22.94	.....	84
1887-90....	15,774,000	441,672	9,368,960	.594	.....	21.21	.....	78
1891-94....	17,819,954	498,959	10,072,122	.562	.....	20.19	.....	84
1862-94....	149,390,355	4,182,930	132,732,250	.740	31.73	26.42	.....	97
1862-66....	33,669,661	942,750	40,684,208	.761	43.15	27.22	.....	100
1867-73....	32,476,000	900,328	35,416,430	.890	38.98	31.89	.....	117
1874-80....	25,598,643	716,762	20,040,491	.753	27.96	26.88	.....	99
1881-87....	27,481,095	769,471	19,040,279	.693	.....	24.74	.....	91
1888-94....	30,164,954	844,619	17,520,842	.580	.....	20.74	.....	76
1876-78....	10,417,620	291,693	8,006,800	.749	27.45	26.76	.....	98
1893-95....	13,586,900	380,433	7,374,523	.543	.....	19.38	.....	71
1862.....	5,843,427	191,616	4,927,267	.490	25.71	17.71	.....	65
1872.....	3,069,000	95,932	2,639,340	.683	27.51	21.25	.....	100
1895.....	4,676,923	130,954	2,338,462	.500	.....	17.86	.....	66

## KENTUCKY.

1862-66....	1,449,754	40,593	1,664,979	.833	41.02	29.74	a-7.90 b-0.82	129
1867-70....	2,515,000	70,420	2,446,580	.770	34.74	27.24	.....	118
1871-74....	4,374,000	122,472	3,514,870	.720	28.70	25.74	.....	111
1875-78....	4,338,960	121,491	2,924,398	.637	24.07	22.74	.....	98
1879-82....	3,444,995	96,460	2,738,088	.795	.....	28.39	.....	123
1883-86....	2,979,104	83,415	1,860,816	.625	.....	22.31	.....	97
1887-90....	3,388,000	94,864	2,065,844	.610	.....	21.78	.....	94
1891-94....	1,914,344	53,601	1,119,466	.585	.....	20.88	.....	90
1862-94....	24,404,157	683,316	18,335,041	.689	26.83	24.62	.....	106
1862-66....	1,449,754	40,593	1,664,979	.833	41.02	29.74	.....	128
1867-73....	5,794,000	162,232	4,954,050	.706	30.54	25.21	.....	109
1874-80....	7,303,575	204,500	5,374,674	.710	26.28	25.36	.....	110
1881-87....	5,414,484	151,605	3,672,028	.688	.....	24.22	.....	105
1888-94....	4,442,344	124,386	2,669,310	.601	.....	21.46	.....	93
1876-78....	3,238,960	90,691	1,923,398	.579	21.21	20.68	.....	89
1893-95....	1,437,150	40,240	828,521	.577	.....	20.59	.....	90
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	1,303,000	36,484	951,190	.647	26.07	23.12	.....	100
1895.....	479,978	13,439	268,788	.560	.....	20.00	.....	86

TABLE VII. (d).—Continued.

## VIRGINIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percentages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton			
					Currency.	Gold.		
1862-66. . . .	698,453	19,557	740,360	.786	37.86	28.07	a-4.31	123
1867-70. . . .	2,847,000	79,716	2,879,190	.768	36.12	27.43	b-0.86	120
1871-74. . . .	1,835,000	51,380	1,376,630	.673	26.79	24.03	.....	105
1875-78. . . .	2,078,200	58,190	1,285,474	.589	22.00	20.46	.....	89
1879-82. . . .	1,435,000	40,180	1,050,658	.732	.....	26.15	.....	115
1883-86. . . .	1,360,368	38,090	918,177	.675	.....	24.11	.....	106
1887-90. . . .	1,424,000	39,872	827,774	.581	.....	20.76	.....	91
1891-94. . . .	1,643,628	46,021	904,700	.550	.....	19.66	.....	86
1862-94. . . .	13,321,649	373,006	9,982,963	.668	26.76	23.86	.....	105
1862-66. . . .	698,453	19,557	740,360	.786	37.86	28.07	.....	123
1867-73. . . .	4,222,000	118,216	3,892,420	.737	32.94	26.32	.....	111
1874-80. . . .	3,234,800	93,374	2,169,052	.618	23.23	22.07	.....	97
1881-87. . . .	2,335,768	65,401	1,634,007	.698	.....	24.98	.....	110
1888-94. . . .	2,730,628	76,458	1,547,124	.566	.....	20.23	.....	89
1876-78. . . .	1,533,200	42,930	860,374	.547	20.04	19.54	.....	86
1893-95. . . .	1,318,365	36,914	710,557	.539	.....	19.25	.....	84
1862 . . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1872 . . . . .	443,000	12,404	318,960	.638	25.71	22.80	.....	100
1895 . . . . .	496,551	13,903	258,207	.520	.....	18.57	.....	81

## GEORGIA.

1862-66....	69,319	1,941	92,887	.995	47.86	35.55	a-1.01	72
1867-70....	319,000	8,932	512,750	1.257	57.41	44.90	b-0.30	91
1871-74....	410,000	11,480	582,800	1.270	50.77	45.35	.....	92
1875-78....	190,000	5,320	283,100	1.433	53.21	51.19	.....	104
1879-82....	459,102	12,855	552,743	1.204	.....	43.00	.....	87
1883-86....	554,560	15,527	639,239	1.173	.....	41.17	.....	83
1887-90....	578,000	16,184	519,870	.899	.....	32.12	.....	65
1891-94....	526,210	14,734	539,288	1.025	.....	36.60	.....	74
1862-94....	3,106,191	86,973	3,722,677	1.131	42.80	40.40	.....	82
1862-66....	69,319	1,941	92,887	.995	47.86	35.55	.....	72
1867-73....	617,000	17,276	926,430	1.240	52.63	44.29	.....	90
1874-80....	458,702	12,843	644,963	1.353	50.22	48.33	.....	98
1881-87....	994,960	27,859	1,123,439	1.129	.....	40.33	.....	82
1888-94....	966,210	27,054	934,958	.968	.....	34.56	.....	70
1876-78....	.....	.....	.....	.....	.....	.....	.....	.....
1893-95....	401,914	11,254	387,632	.964	.....	34.44	.....	70
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	108,000	3,024	168,480	1.383	55.71	49.41	.....	100
1895.....	138,800	3,887	117,988	.850	.....	30.35	.....	61

TABLE VII. (d).—Continued.

## TEXAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percentages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66. . . .	123,046	3,445	132,890	.802	38.57	28.66	a-0.54	66
1867-70. . . .	391,000	10,948	494,620	.992	45.18	35.42	b-0.09	81
1871-74. . . .	186,000	5,208	242,920	1.282	46.64	42.22	.....	96
1875-78. . . .	162,000	4,536	149,200	.875	32.89	30.46	.....	70
1879-82. . . .	175,782	4,922	175,262	.997	.....	35.61	.....	81
1883-86. . . .	199,855	5,596	166,844	.835	.....	29.81	.....	68
1887-90. . . .	220,000	6,160	173,682	.789	.....	28.20	.....	64
1891-94. . . .	217,178	6,081	155,944	.718	.....	25.64	.....	59
1862-94. . . .	1,674,861	46,896	1,691,362	.907	36.07	32.40	.....	74
1862-66. . . .	123,046	3,445	132,890	.802	38.57	28.66	.....	66
1867-73. . . .	537,000	15,036	693,140	1.059	46.10	37.83	.....	87
1874-80. . . .	274,882	7,697	262,434	.913	34.10	32.61	.....	75
1881-87. . . .	355,755	9,961	310,372	.873	.....	31.16	.....	71
1888-94. . . .	384,178	10,737	292,526	.761	.....	27.19	.....	62
1876-78. . . .	110,000	3,080	92,000	.815	29.87	29.12	.....	67
1893-95. . . .	132,718	3,716	96,069	.724	.....	25.85	.....	59
1862. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1872. . . . .	54,000	1,512	74,520	1.224	49.29	43.72	.....	100
1895. . . . .	24,129	676	18,097	.750	.....	26.77	.....	61

## CALIFORNIA.

1862-66. . . .	15,505	434	28,994	1.870	.....	66.80	.....	183
1867-70. . . .	66,100	1,851	83,477	1.263	.....	45.10	a-1.86	124
1871-74. . . .	152,900	4,281	160,360	1.049	.....	37.46	b-0.21	103
1875-78. . . .	348,000	9,744	289,350	.832	.....	29.70	.....	82
1879-82. . . .	932,935	26,122	891,842	.956	.....	34.14	.....	94
1883-86. . . .	1,198,587	33,560	925,690	.772	.....	27.58	.....	76
1887-90. . . .	1,246,000	34,888	909,654	.730	.....	26.07	.....	72
1891-94. . . .	1,783,526	49,939	1,070,116	.600	.....	21.43	.....	59
1862-94. . . .	5,743,553	160,819	4,359,483	.759	.....	27.11	.....	75
1862-66. . . .	15,505	434	28,994	1.870	.....	66.80	.....	183
1867-73. . . .	173,000	4,844	196,457	1.136	.....	40.56	.....	111
1874-80. . . .	930,804	26,062	860,511	.925	.....	33.02	.....	91
1881-87. . . .	1,883,718	52,744	1,524,951	.809	.....	28.91	.....	79
1888-94. . . .	2,740,526	76,735	1,748,570	.638	.....	22.79	.....	62
1876-78. . . .	273,000	7,664	220,350	.805	.....	28.75	.....	79
1893-95. . . .	1,317,715	36,896	782,110	.594	.....	21.20	.....	58
1862. . . . .	15,505	434	28,994	1.871	.....	66.81	.....	184
1872. . . . .	36,000	1,008	36,720	1.020	.....	36.43	.....	100
1895. . . . .	425,952	11,927	247,052	.580	.....	20.71	.....	57

TABLE VII. (e).

An exhibit of the total product, in bushels and tons, of the rye raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Cur'ney	Gold.	
1862-66 .....	62,621,781	1,753,409	73,916,196	.748	42.15	26.74	99
1867-70 .....	45,849,100	1,283,775	55,036,707	.937	42.87	33.47	124
1871-74 .....	27,795,900	778,285	23,977,139	.778	30.80	27.79	103
1875-78 .....	32,918,780	921,726	24,508,442	.710	26.55	25.37	94
1879-82 .....	35,426,510	991,942	28,621,224	.808	.....	28.85	107
1883-86 .....	33,176,885	928,953	21,878,165	.660	.....	23.55	88
1887-90 .....	33,144,000	928,032	20,388,016	.615	.....	21.97	82
1891-94 .....	37,974,610	1,063,289	22,075,736	.581	.....	20.76	77
1862-66 .....	62,621,781	1,753,409	73,916,196	.748	42.16	26.74	99
1867-73 .....	66,808,000	1,870,624	72,769,857	.882	38.81	31.50	117
1874-80 .....	58,401,179	1,635,232	45,049,771	.742	27.55	26.54	98
1881-87 .....	57,596,996	1,612,715	40,761,260	.708	.....	25.28	93
1888-94 .....	63,479,610	1,777,431	37,904,532	.579	.....	21.33	79
1862-94 .....	308,907,566	8,649,411	270,401,616	.737	31.26	26.34	98
1867-94 .....	246,285,785	6,896,052	196,485,420	.735	28.48	26.24	97
1867-78 .....	106,563,780	2,983,786	103,522,279	.826	34.69	29.49	109
1879-86 .....	68,003,395	1,920,895	50,499,389	.736	.....	26.29	98
1887-94 .....	71,118,610	1,991,321	42,463,752	.597	.....	21.34	79
1867-78 .....	106,563,780	2,983,786	103,522,279	.826	34.69	29.49	109
1879-82 .....	35,426,510	991,942	28,621,224	.885	.....	28.85	107
1883-94 .....	104,295,495	2,920,274	64,341,917	.617	.....	22.03	82
1867-80 .....	125,209,179	3,505,856	117,819,628	.817	33.60	29.17	108
1881-94 .....	121,076,606	3,390,196	78,665,792	.649	.....	23.24	86
1876-78 .....	25,406,780	711,410	17,931,042	.674	25.20	24.07	89
1893-95 .....	29,557,791	827,618	16,363,971	.554	.....	19.77	73
1862 .....	12,244,200	342,838	9,049,065	.509	26.39	18.18	67
1872 .....	6,885,000	192,780	5,855,290	.755	30.37	26.96	100
1895 .....	10,570,486	295,974	5,326,103	.504	.....	17.99	67



TABLE VII. (f).

An exhibit for various years and periods of years, of the different average gold farm or home values and different index numbers for the rye raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates Per Ton. (3)	According to Column—			Average of Index Numbers for Seven States.	According to Relative Importance. (a)
					(1)	(2)	(3)		
		Per Ton.	Per Bushel.						
1862-66 ...	\$26.74	\$26.71	.748	18.17	99	106	103	109	128
1867-70 ...	33.47	32.28	.904	24.26	124	128	138	112	129
1871-74 ...	27.79	26.91	.753	20.30	103	107	115	101	108
1875-78 ...	25.37	24.75	.693	15.76	94	98	89	90	98
1879-82 ...	28.85	27.66	.774	25.93	107	109	147	101	110
1883-86 ...	23.55	22.45	.629	19.06	88	89	108	85	89
1887-90 ...	21.97	20.96	.587	20.86	82	80	118	77	83
1891-94 ...	20.76	19.87	.556	19.61	77	71	111	74	78
1862-66 ...	26.74	26.71	.748	18.17	99	106	103	109	128
1867-73 ...	31.50	30.54	.855	22.24	117	121	126	105	122
1874-80 ...	26.54	25.63	.718	21.36	98	101	121	95	102
1881-87 ...	25.28	24.13	.676	21.06	93	91	119	90	96
1888-94 ...	21.33	20.38	.571	20.38	79	80	115	75	80
1862-94 ...	26.34	26.34	.737	23.16	98	104	131	90	101
1876-78 ...	24.07	24.16	.676	18.81	89	91	107	84	93
1893-95 ...	19.77	18.94	.530	17.91	73	71	101	72	74
1862 .....	18.18	19.31	.541	15.32	67	71	87	105	70
1872 .....	26.96	25.20	.706	17.65	100	100	100	100	100
1895 .....	17.99	17.26	.483	15.18	67	61	86	67	66

(a) Computed by Sauerbeck's method.

TABLE VII. (g).

An exhibit of the total product, in bushels and tons, of the rye raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66 .....	82,286,367	2,304,018	89,521,908	.700	38.86	25.01	108
1867-70 .....	67,108,300	1,879,033	73,320,585	.845	30.19	30.19	130
1871-74 .....	50,582,200	1,416,301	38,240,470	.679	27.00	24.56	106
1875-78 .....	73,759,680	2,065,271	44,478,372	.567	21.53	20.27	87
1879-82 .....	85,164,272	2,384,599	59,784,310	.702	.....	25.07	108
1883-86 .....	89,524,117	2,506,676	47,314,748	.529	.....	18.85	81
1887-90 .....	85,036,000	2,381,008	47,208,098	.555	.....	19.84	85
1891-94 .....	94,067,606	2,633,893	46,217,182	.491	.....	17.55	74
1862-66 .....	82,286,367	2,304,018	89,521,908	.700	38.86	25.01	108
1867-73 .....	105,173,500	2,944,858	101,211,605	.777	34.37	27.77	120
1874-80 .....	127,922,051	3,581,816	83,454,000	.624	23.29	22.02	95
1881-87 .....	150,561,018	4,215,708	87,682,730	.584	.....	20.80	90
1888-94 .....	161,585,606	4,524,399	84,215,430	.526	.....	18.62	80
1862-94 .....	627,528,542	17,570,799	446,085,673	.623	25.39	22.26	96
1867-94 .....	545,242,175	15,266,831	356,563,765	.612	23.36	21.71	93
1867-78 .....	191,450,180	5,360,605	156,039,427	.694	29.11	24.80	107
1879-86 .....	174,688,389	4,891,275	107,099,058	.613	.....	21.89	94
1887-94 .....	179,103,606	5,014,901	93,425,280	.522	.....	18.63	80
1867-78 .....	191,450,180	5,360,605	156,039,427	.694	29.11	24.80	108
1879-82 .....	85,164,272	2,384,599	59,784,310	.702	.....	25.71	110
1883-94 .....	268,627,723	7,521,577	140,740,028	.524	.....	18.71	81
1867-80 .....	233,095,551	6,526,674	184,665,605	.694	28.60	24.76	107
1881-94 .....	312,146,624	8,740,127	171,898,160	.550	.....	19.67	85
1876-78 .....	58,652,680	1,642,295	33,350,972	.538	20.31	19.22	83
1893-95 .....	71,082,059	1,990,298	33,274,158	.468	.....	16.72	72
1862 .....	16,932,911	474,122	11,392,324	.503	24.04	17.97	73
1872 .....	12,448,300	348,552	9,017,190	.650	25.87	23.23	100
1895 .....	24,048,256	673,352	10,165,567	.423	.....	15.09	70

TABLE VII. (h).

An exhibit for various years and periods of years, of the different average gold farm or home values and different index numbers for the rye raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division (1)	Method for Correcting Averages adopted in this report. (2)		Allowing for Influence of Ch'nging Freight Rates Per Ton. (3)	According to Column.			Average of Index Numbers for Seventeen States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
1862-66....	25.01	22.07	.618	15.94	108	101	99	104	102
1867-70....	30.19	27.38	.767	22.42	130	126	139	119	127
1871-74....	24.56	23.52	.658	18.37	106	108	114	107	109
1875-78....	20.27	20.77	.581	14.12	87	95	87	84	92
1879-82....	25.07	25.17	.705	23.43	108	116	145	114	116
1883-86....	18.85	19.74	.553	17.46	81	90	108	90	89
1887-90....	19.84	19.85	.556	18.83	85	90	116	91	93
1891-94....	17.55	17.58	.492	17.45	74	81	108	81	80
1862-66....	25.01	22.07	.618	15.94	108	101	99	104	102
1867-73....	27.77	25.67	.619	20.32	120	118	126	112	119
1874-80....	22.02	22.40	.627	19.72	95	102	122	99	102
1881-87....	20.80	21.50	.602	19.01	90	91	118	97	97
1888-94....	18.62	18.63	.522	18.27	80	85	113	86	86
1862-94....	22.26	22.26	.623	20.46	96	102	127	96	100
1876-78....	19.22	20.35	.570	16.71	83	94	103	87	87
1893-95....	16.72	16.80	.470	15.74	72	77	97	76	77
1862.....	17.97	15.57	.436	12.78	73	71	79	71	73
1872.....	23.23	21.81	.611	16.17	100	100	100	100	100
1895.....	15.09	15.31	.429	13.03	70	70	81	69	69

(a) Computed by Sauerbeck's method.

TABLE VII. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of rye raised in the states of the American Union not included in the ten given in Table (a) to (c), and referred to in tables as the Exterior States, together with the total product of rye in said states in bushels and tons, and its total home or farm value in currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN -		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars, Gold.	AVERAGE VALUE PER BUSHEL IN CENTS.	
		Bushels.	Tons.	Currency.	Gold.		Currency.	Gold.
1862.....	878,549	15,889,260	444,899	12,060,160	8,318,467	18.70	75.9	52.4
1863.....	1,161,512	15,797,130	442,319	17,279,819	11,110,924	25.12	109.4	70.4
1864.....	1,132,028	16,150,551	452,217	27,651,618	12,802,699	28.31	171.2	79.3
1865.....	1,144,833	15,771,639	441,606	18,796,311	13,420,566	30.39	119.2	85.1
1866.....	1,322,245	17,575,964	492,126	21,578,400	16,032,751	32.78	122.8	91.8
1867.....	1,370,306	18,137,000	507,836	26,541,550	19,162,999	37.73	146.3	105.6
1868.....	1,343,048	17,332,000	485,296	23,688,540	17,465,818	35.98	136.7	100.7
1869.....	1,329,486	17,494,900	489,857	18,406,024	15,171,113	30.97	105.2	86.7
1870.....	789,648	9,467,200	265,082	8,753,284	7,907,089	29.83	92.5	83.5
1871.....	725,929	9,619,500	269,346	8,666,996	7,950,528	29.51	90.1	82.6
1872.....	711,599	9,325,300	261,106	8,202,793	7,280,026	27.88	87.9	78.1
1873.....	759,295	9,345,000	261,666	8,029,806	7,207,000	27.54	85.9	77.1
1874.....	729,624	9,310,900	260,705	8,764,941	7,797,292	29.91	94.1	83.7
1875.....	882,488	10,127,100	283,556	9,081,900	8,054,433	28.40	89.7	79.5
1876.....	865,577	10,549,800	295,304	8,289,576	7,804,863	26.42	78.5	74.0
1877.....	814,755	11,039,100	309,005	7,591,485	7,477,613	24.20	68.8	67.8
1878.....	870,200	12,552,890	351,481	8,470,556	8,470,556	23.74	67.5	66.5
1879.....	837,850	10,061,480	281,722	7,519,667	7,519,667	26.69	74.7	74.7
1880.....	1,118,378	15,118,837	423,327	12,223,495	12,223,495	28.87	80.8	80.8
1881.....	1,131,700	11,880,950	332,667	11,673,305	11,673,305	35.09	98.3	98.3
1882.....	1,174,945	12,046,247	337,295	9,259,047	9,259,047	27.45	76.9	76.9
1883.....	1,201,534	11,697,350	327,525	8,647,100	8,647,100	26.40	73.9	73.9
1884.....	1,215,464	11,822,000	331,016	7,850,530	7,850,530	23.72	66.4	66.4
1885.....	1,205,505	10,313,000	288,764	7,118,740	7,118,740	24.65	69.0	69.0
1886.....	1,204,232	12,764,000	357,392	7,880,740	7,880,740	22.05	61.7	61.7
1887.....	1,206,365	10,814,000	302,792	6,632,510	6,632,510	21.90	61.3	61.3
1888.....	1,212,644	12,348,000	345,744	7,962,458	7,962,458	23.03	64.5	64.5
1889.....								
1890.....								
1891.....								
1892.....								
1893.....	951,951	12,790,087	358,123	7,838,912	7,838,912	21.84	61.3	61.3
1894.....	937,617	12,446,476	348,501	7,097,063	7,097,063	20.26	57.0	57.0
1895.....	945,129	13,732,300	384,504	7,125,362	7,125,362	18.53	51.9	51.9
1862-66....	5,639,167	81,184,544	2,273,167	97,366,308	61,685,407	27.14	119.9	76.0
1867-70....	4,832,488	62,431,100	1,748,071	77,389,398	59,707,019	34.15	124.0	95.6
1871-74....	2,926,447	37,600,709	1,052,820	33,664,536	30,234,846	28.72	89.5	80.4
1875-78....	3,433,020	44,268,890	1,239,529	33,433,517	31,807,465	25.66	75.5	71.8
1879-82....	4,262,873	49,107,514	1,375,011	40,675,514	38,000,000	29.58	100.1	82.8
1883-86....	4,826,735	46,596,350	1,304,697	31,497,110	29,000,000	24.15	75.4	75.4
1887-90....	4,838,018	46,324,000	1,297,072	29,189,936	27,000,000	22.50	63.0	63.0
1891-94....	3,779,136	50,473,126	1,413,247	29,871,950	27,000,000	21.14	59.2	59.2
1862-66....	5,639,167	81,184,544	2,273,167	97,366,308	61,685,407	27.14	119.9	76.0
1867-73....	7,029,311	90,720,900	2,540,186	102,288,998	82,144,573	32.34	112.7	90.6
1874-80....	6,118,872	78,760,107	2,205,283	61,941,620	59,347,919	28.91	78.6	75.4
1881-87....	8,839,745	81,337,547	2,277,451	59,061,972	54,000,000	25.94	72.6	72.6
1888-94....	7,410,789	85,983,126	2,407,527	52,429,376	48,000,000	21.78	61.0	61.0
1862-94....	34,537,884	417,986,224	11,703,614	373,088,269	314,669,247	26.89	89.3	75.3
1867-94....	28,989,717	336,801,680	9,430,447	275,721,961	252,983,840	26.83	81.9	75.1
1867-78....	11,191,955	144,300,690	4,040,420	144,487,451	121,749,330	30.13	100.1	84.4
1879-86....	9,089,608	95,703,864	2,679,708	72,172,624	66,000,000	26.94	75.4	75.4
1887-94....	8,617,154	96,797,126	2,710,319	59,061,886	54,000,000	21.79	61.0	61.0
1867-78....	11,191,955	144,300,690	4,040,420	144,487,451	121,749,330	30.13	100.1	84.4
1879-82....	4,262,873	49,107,514	1,375,011	40,675,514	38,000,000	29.58	75.4	75.4
1883-94....	13,443,889	143,393,476	4,015,016	90,558,996	82,000,000	22.55	63.1	63.1
1867-80....	13,148,183	169,481,007	4,745,469	164,230,613	141,492,492	29.82	96.9	83.5
1881-94....	15,750,534	167,320,673	4,684,978	111,491,348	100,000,000	23.80	66.6	66.6
1876-78....	2,550,532	34,141,790	955,970	24,351,617	23,753,032	24.85	71.3	69.6
1893-95....	2,834,697	38,968,863	1,091,128	22,061,337	20,000,000	20.22	59.6	59.6



TABLE VII. (j).

An exhibit by years and certain periods of years, of the acres of rye raised in the United States, its average yield per acre in bushels, together with its total farm or home value in dollars currency, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Bushels.	AVERAGE		
		Bushels.	Tons.			Value Per Bushel in Cents.		Value Per Ton in Dolls., Gold.
						Currency.	Gold.	
1862.....	1,136,160	20,577,971	576,183	14,403,419	18.1	70.0	48.3	17.24
1863.....	1,439,607	19,989,335	559,701	20,589,015	13.9	103.0	66.2	23.65
1864.....	1,410,983	19,872,975	556,445	31,975,013	14.1	160.9	74.5	26.66
1865.....	1,396,123	19,543,905	547,229	21,343,253	14.0	109.2	78.0	27.85
1866.....	1,548,033	20,864,944	584,218	24,661,290	13.5	118.2	87.8	31.36
1867.....	1,689,175	23,184,000	649,152	32,499,700	13.7	140.2	101.2	36.15
1868.....	1,651,321	22,504,800	630,135	28,683,677	13.6	127.4	94.0	33.56
1869.....	1,657,584	22,527,900	630,781	21,877,294	13.5	97.1	80.0	28.58
1870.....	1,176,137	15,473,600	433,261	12,612,605	13.1	81.5	73.6	26.29
1871.....	1,069,531	15,365,500	430,234	12,145,646	14.3	79.0	72.5	25.89
1872.....	1,048,654	14,888,600	416,881	11,363,693	14.1	76.3	67.7	24.19
1873.....	1,150,355	15,142,000	423,976	11,548,126	13.1	76.2	68.4	24.44
1874.....	1,116,716	14,990,900	419,745	12,870,411	13.4	85.8	76.4	27.27
1875.....	1,359,788	17,722,100	496,219	13,631,900	13.0	76.9	68.2	24.35
1876.....	1,468,374	20,374,800	570,494	13,635,826	13.8	66.9	63.0	22.50
1877.....	1,412,902	21,170,100	592,763	12,542,895	14.9	59.2	58.4	20.84
1878.....	1,622,700	25,842,790	723,598	13,592,826	15.9	52.6	52.6	18.78
1879.....	1,625,450	23,639,460	661,905	15,507,431	14.5	.....	65.6	23.43
1880.....	1,767,619	24,540,829	687,143	18,564,560	13.9	.....	75.6	27.02
1881.....	1,789,100	20,704,950	579,739	19,327,415	11.6	.....	93.3	33.34
1882.....	2,227,884	29,960,037	838,881	18,439,194	13.4	.....	61.5	21.98
1883.....	2,314,754	28,058,582	785,640	16,300,503	12.1	.....	58.1	20.75
1884.....	2,343,963	28,640,000	801,920	14,857,040	12.2	.....	51.9	18.52
1885.....	2,129,301	21,756,000	609,168	12,594,820	10.2	.....	58.0	20.67
1886.....	2,129,918	24,489,000	685,692	13,181,330	11.5	.....	53.8	19.22
1887.....	2,053,447	20,693,000	579,404	11,283,140	10.1	.....	54.5	19.47
1888.....	2,364,805	28,415,000	795,620	16,721,869	12.0	.....	58.8	21.02
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	2,038,485	26,555,446	743,553	13,612,222	13.0	.....	51.3	18.31
1894.....	1,944,780	26,727,615	748,373	13,394,476	13.1	.....	50.1	17.89
1895.....	1,890,345	27,210,070	761,882	11,964,826	14.4	.....	44.0	15.70
1862-66....	6,930,906	100,849,130	2,823,776	112,972,020	14.6	112.0	70.9	25.33
1867-70....	6,174,217	83,690,300	2,343,329	95,673,276	13.6	114.3	88.5	31.59
1871-74....	4,385,256	60,387,000	1,690,836	47,927,876	13.8	79.4	71.3	25.45
1875-78....	5,863,764	85,109,790	2,383,074	53,403,447	14.5	62.7	59.8	21.35
1879-82....	7,410,053	98,845,276	2,767,668	71,838,600	13.3	.....	72.7	25.95
1883-86....	8,917,936	102,943,582	2,882,420	56,933,693	11.5	.....	55.3	19.75
1887-90....	8,836,504	98,216,000	2,750,048	56,010,018	11.1	.....	57.0	20.33
1891-94....	7,966,530	106,566,122	2,983,851	54,013,396	13.4	.....	50.7	18.10
1862-66....	6,930,906	100,849,130	2,823,776	112,972,020	14.5	112.0	70.9	25.33
1867-73....	9,442,757	129,086,400	3,614,420	130,730,741	13.6	101.3	81.8	29.22
1874-80....	10,373,549	148,280,979	4,151,867	100,345,849	14.3	67.0	65.0	23.22
1881-87....	14,988,367	174,301,569	4,880,444	105,983,442	11.6	.....	60.8	21.72
1888-94....	14,749,587	184,089,122	5,154,495	98,740,274	12.5	.....	53.6	19.17
1862-94....	56,485,166	736,607,200	20,625,002	548,772,326	13.0	74.5	61.9	23.19
1867-94....	49,554,260	635,758,070	17,801,226	435,800,306	12.8	68.5	64.0	22.85
1867-78....	16,423,237	229,187,090	6,417,239	197,004,599	14.0	86.0	73.3	26.17
1879-86....	16,327,989	201,788,858	5,650,088	128,772,293	12.4	.....	63.8	22.79
1887-94....	16,803,034	204,782,122	5,733,899	110,023,414	12.2	.....	53.7	19.19
1867-78....	16,423,237	229,187,090	6,417,239	197,004,599	14.0	86.0	73.3	26.17
1879-82....	7,410,053	98,845,276	2,767,668	71,838,600	13.3	.....	72.7	25.95
1883-94....	25,720,970	307,725,704	8,616,319	166,967,107	12.0	.....	54.2	19.38
1867-80....	19,816,306	277,367,379	7,766,287	231,076,590	14.0	83.3	72.8	26.01
1881-94....	29,737,954	358,390,691	10,034,939	204,723,716	12.1	.....	57.1	20.40
1876-78....	4,503,976	67,387,690	1,886,855	39,771,547	14.9	59.0	57.5	20.55
1893-95....	5,873,610	80,493,131	2,253,808	38,971,524	13.7	.....	48.4	17.29

TABLE VII. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per bushel and ton of the rye raised in the ten Mississippi Valley states, in the Exterior States, including all excepting the ten Mississippi Valley states, and in the nation, together with the weight in tons and its value in dollars gold of the per capita product of rye in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER BUSHEL, IN CENTS.			GOLD VALUES PER TON, IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in tons.	Value in Dollars, Gold.
1862....	68	67	71	34.4	52.4	48.3	12.30	18.70	17.24	.....	.....
1863....	101	90	98	50.8	70.4	63.2	18.13	25.12	23.65	.....	.....
1864....	106	101	110	53.8	79.3	74.5	19.21	28.31	26.61	.....	.....
1865....	96	101	115	48.2	85.1	78.0	17.22	30.39	27.85	.....	.....
1866....	138	118	130	69.6	91.8	87.8	24.87	32.78	31.36	.....	.....
1867....	169	135	139	71.2	100.7	101.2	30.44	37.73	36.15	.018	.65
1868....	141	129	149	85.2	105.6	94.0	25.42	35.98	33.56	.017	.57
1869....	113	111	118	56.9	86.7	80.0	20.30	30.97	28.58	.017	.48
1870....	115	107	108	58.0	83.5	73.6	20.72	29.83	26.29	.011	.29
1871....	110	106	107	55.5	82.6	72.5	19.83	29.51	25.89	.011	.28
1872....	100	100	100	50.4	78.1	67.7	18.00	27.88	24.19	.010	.25
1873....	108	99	100	54.4	77.1	68.4	19.44	27.54	24.44	.010	.25
1874....	127	107	113	64.3	83.7	76.4	22.95	29.91	27.27	.010	.27
1875....	105	102	100	53.1	79.5	68.2	18.95	28.40	24.35	.011	.27
1876....	102	95	93	51.2	74.0	63.0	18.29	26.42	22.50	.013	.29
1877....	96	87	81	48.1	67.8	58.4	17.19	24.20	20.84	.013	.27
1878....	76	85	78	38.5	66.5	52.6	13.71	23.74	18.78	.015	.28
1879....	117	96	97	58.8	74.7	65.6	21.01	26.69	23.43	.014	.32
1880....	134	103	110	67.4	80.8	75.6	24.03	28.87	27.02	.014	.37
1881....	172	126	138	86.8	98.3	93.3	30.90	35.09	33.34	.011	.37
1882....	101	98	91	51.2	76.9	61.5	18.28	27.45	21.98	.016	.35
1883....	93	94	86	46.8	73.9	58.1	16.71	26.40	20.75	.015	.31
1884....	83	85	77	41.7	66.4	51.9	14.88	23.72	18.52	.015	.27
1885....	95	88	85	47.8	69.0	58.0	17.11	24.65	20.67	.011	.22
1886....	90	79	79	45.2	61.7	53.8	16.16	22.05	19.22	.012	.23
1887....	94	79	80	47.2	61.3	54.5	16.85	21.90	19.47	.010	.19
1888....	108	73	87	54.6	64.5	58.8	19.50	23.03	21.02	.013	.28
1889....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893....	83	79	76	42.0	61.3	51.3	15.00	21.81	18.31	.011	.20
1894....	87	73	74	44.0	57.0	50.1	15.70	20.36	17.89	.011	.20
1895....	71	66	65	36.0	51.9	44.0	12.82	18.53	15.70	.011	.17
1862-66.	99	97	105	50.1	76.0	70.9	17.90	27.14	25.33	.....	.....
1867-70.	133	122	131	67.4	95.6	88.5	24.07	34.15	31.59	.016	.50
1871-74.	111	103	105	56.2	80.4	71.3	20.06	28.72	25.45	.010	.26
1875-78.	92	92	88	46.6	71.8	59.8	16.67	25.66	21.35	.013	.28
1879-82.	124	106	107	62.6	82.8	72.7	22.38	29.58	25.95	.014	.35
1883-86.	90	87	82	45.1	67.6	55.3	16.12	24.15	19.75	.013	.26
1887-90.	103	79	84	51.7	63.0	57.0	18.47	22.50	20.33	.011	.23
1891-94.	85	76	75	43.0	59.2	50.7	15.38	21.14	18.10	.011	.20
1862-66.	99	97	105	50.1	76.0	70.9	17.90	27.14	25.33	.....	.....
1867-73.	121	116	121	61.2	90.6	81.8	21.86	32.34	29.22	.013	.39
1874-80.	106	98	96	53.3	75.4	65.0	19.03	26.91	23.22	.013	.30
1881-87.	100	93	90	50.5	72.6	60.8	18.03	25.94	21.72	.013	.28
1888-94.	94	78	79	47.2	61.0	53.6	16.86	21.78	19.17	.012	.22
1862-94.	102	96	96	51.3	75.3	64.9	18.34	26.89	23.19	.....	.....
1867-94.	102	96	94	51.4	75.1	64.0	18.37	26.83	22.85	.012	.28
1867-78.	108	108	108	54.4	84.4	73.3	19.43	30.13	26.17	.013	.34
1879-86.	106	96	94	53.3	75.4	63.8	19.05	26.94	22.79	.013	.30
1887-94.	94	78	79	47.2	61.0	53.7	16.86	21.79	19.19	.011	.20
1867-78.	108	108	108	54.4	84.4	73.3	19.43	30.13	26.17	.013	.34
1879-82.	124	106	107	62.6	82.8	72.7	22.38	29.58	25.95	.014	.35
1883-94.	92	88	80	46.5	63.1	54.2	16.60	22.55	19.38	.012	.23
1867-80.	111	107	108	56.1	83.5	72.8	20.03	29.82	26.01	.013	.34
1881-94.	97	85	84	48.7	66.6	57.1	17.43	23.80	20.40	.012	.25
1876-78.	90	89	85	45.2	69.6	57.5	16.16	24.85	20.55	.014	.28
1893-95.	81	73	71	40.7	56.6	48.4	14.54	20.22	17.29	.011	.19

## CHAPTER VIII.

## BUCKWHEAT.

## STABLE PRICES.

Buckwheat, like barley and rye, must be counted among the minor crops of the United States. In the past thirty-five years it has constituted less than six-tenths of one per cent of the total weight of the six crops, corn, oats, wheat, rye, barley, and buckwheat. Its use as an article of food has since 1870 relatively greatly decreased owing to the great use of oat meal and kindred products for the breakfast table of the nation. But in spite of this fact of decreased consumption, the prices of buckwheat for the four-year and seven-year periods ending with 1894 averaged higher than for the war period thirty years before. They were, however, lower in these last periods of time than in the years of exceptionally high prices that prevailed from 1867 down to about 1871. The price movement shown in Tables (c), (f), and (g) is summarized for seven-year periods in the following exhibit:

TABLE A.

A comparative exhibit of the corrected average gold farm value of buckwheat in the ten, seven, and seventeen selected states whose detailed statistics are presented in this report.

YEARS.	AVERAGE GOLD VALUE PER BUSHEL, IN CENTS.		
	Ten States.	Seven States.	Seventeen States.
1862-66 .....	56.1	57.7	57.4
1867-73 .....	70.0	76.9	65.2
1874-80 .....	65.2	62.3	62.9
1881-87 .....	71.0	64.3	65.6
1888-94 .....	60.8	58.2	58.7



## EFFECT OF CHANGING RAILROAD RATES.

In the foregoing exhibit there can be found no trace of a permanent change of price for buckwheat in any part of the nation due to changing railway rates or kindred causes. The same may be said for all the tables for buckwheat in this report. The absence of the disturbing factor explains the fact that buckwheat prices have not, like those of barley and rye, suffered a radical fall in the seaboard states since 1862.

## THE DECREASING RELATIVE DEMAND FOR BUCKWHEAT

is partially shown in Table (k) in the weight of the per capita product of this grain produced in the nation. To learn the full decrease of this demand use must be made, as with other grains, of the average yield per acre by seven-year periods. The true changes in the per capita product of buckwheat, when allowance is made for variation in the reported average yield per acre, is exhibited below:

TABLE B.

A comparative exhibit of the reported average yield in the United States per acre of buckwheat in bushels and the weight and value of the per capita product of that grain as it would be according to the published reports of the Department of Agriculture and as corrected to allow for varying reports in average yield per acre.

YEARS.	Average Yield Per Acre in Bushels.	PER CAPITA PRODUCT.			
		As Reported.		As Corrected.	
		Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	17.7	.0089	\$0.259	.0076	\$0.221
1874-80.....	17.4	.0062	.149	.0056	.131
1881-87.....	12.1	.0030	.126	.0062	.157
1888-94.....	14.2	.0049	.110	.0052	.117

The great decline in average value, the weight and value of the per capita product came about the year 1871. The years 1879 to 1882, with the high prices for all farm products, saw a temporary advance in the average selling price of buckwheat and also in the value of the per capita product of the grain.



## THE INDEX NUMBERS OBTAINED BY DIFFERENT METHODS

do not show the marked agreement found in the case of rye. They agree, however, in this, that they show no marked change in average price when comparing the last four or seven-year period with the war period, 1862 to 1866.

NOTE.—The figures found in the periods including any of the years 1889 to 1892 are in part at least estimated, as has been explained under rye and barley. Note also the remark made in connection with these and all other grains concerning the reported figures for Nebraska, California, Texas, Kentucky, Virginia, and Georgia for the years 1862 to 1867.

TABLE VIII. (a).

An exhibit by states for various years and periods of years from 1862 to 1895, inclusive, of the total product in bushels and tons of the buckwheat raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska and Kansas, together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers, showing the percentage which the average gold value each year and period was of the average gold value in the same states for the year 1872.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66. . .	6,347,882	165,045	5,869,906	.600	35.57	23.07	a20.18	72
1867-70. . .	3,167,000	82,342	3,270,010	.807	39.71	31.06	b 0.18	97
1871-74. . .	844,000	21,944	800,090	.856	36.46	32.94		103
1875-78. . .	1,391,800	36,187	1,017,298	.690	28.11	36.05		113
1879-82. . .	1,059,531	27,548	829,282	.782		30.10		94
1883-86. . .	606,804	15,777	437,179	.720		27.72		87
1887-90. . .	502,000	13,052	347,468	.692		26.62		83
1891-94. . .	711,658	18,503	449,762	.632		24.31		76
1862-94. . .	14,630,675	380,398	13,020,995	.691	34.23	26.59		83
1862-66. . .	6,347,882	165,045	5,869,906	.600	35.57	23.07		72
1867-73. . .	3,819,000	99,294	3,897,300	.818	39.25	31.47		98
1874-80. . .	2,270,011	59,021	1,693,347	.713	28.69	27.42		86
1881-87. . .	1,087,124	28,265	835,972	.769		29.57		93
1888-94. . .	1,106,658	28,773	724,470	.654		25.18		79
1876-78. . .	1,021,800	26,567	713,898	.681	26.87	26.20		82
1893-95. . .	538,022	13,988	325,087	.604		23.24		73
1862. . . . .	1,181,947	30,730	626,432	.365	20.39	14.05		44
1872. . . . .	218,000	5,668	204,920	.831	36.15	31.96		100
1895. . . . .	182,193	4,737	100,206	.550		21.15		66

## INDIANA.

1862-66. . . .	1,566,348	40,725	1,391,832	.576	34.18	22.17	a7.44	76
1867-70. . . .	1,389,000	35,880	1,260,180	.708	35.12	27.25	b0.08	90
1871-74. . . .	614,000	15,964	465,720	.679	29.17	26.11		90
1875-78. . . .	465,520	12,104	364,412	.741	30.11	28.53		98
1879-82. . . .	433,590	11,273	341,106	.786		30.26		101
1883-86. . . .	331,784	8,626	228,592	.689		26.50		91
1887-90. . . .	316,000	8,216	217,140	.687		26.43		91
1891-94. . . .	285,112	7,413	159,662	.560		21.54		74
1862-94. . . .	5,392,354	140,201	4,428,644	.665	31.59	25.60		88
1862-66. . . .	1,566,348	40,725	1,391,832	.576	34.18	22.17		76
1867-73. . . .	1,839,000	47,814	1,639,100	.717	34.28	27.60		95
1874-80. . . .	886,630	23,052	645,978	.694	28.02	26.61		92
1881-87. . . .	567,264	14,749	420,492	.741		28.51		98
1888-94. . . .	533,112	13,861	331,242	.621		23.90		82
1876-78. . . .	295,520	7,684	202,912	.670	26.40	25.75		95
1893-95. . . .	228,299	5,936	129,562	.568		21.83		75
1862. . . . .	367,797	9,563	183,899	.345	19.23	13.25		46
1872. . . . .	166,000	4,316	141,100	.754	32.69	29.00		100
1895. . . . .	85,743	2,229	49,731	.580		22.31		77

TABLE VIII. (a)—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862.....	431,336	11,214	185,474	.296	16.54	11.40	.....	50
1863.....	258,802	6,729	183,749	.457	27.31	17.56	.....	64
1864.....	280,370	7,289	308,407	.509	42.31	19.59	.....	71
1865.....	287,379	7,472	258,063	.641	34.54	24.66	.....	89
1866.....	273,010	7,098	292,121	.795	41.16	30.58	.....	111
1867.....	248,000	6,448	272,800	.794	42.31	30.55	.....	111
1868.....	198,000	5,148	211,860	.789	41.16	30.33	.....	110
1869.....	251,000	6,526	190,760	.626	29.23	24.09	.....	87
1870.....	206,000	5,356	140,080	.614	26.15	23.62	.....	86
1871.....	164,000	4,264	121,360	.679	28.46	26.10	.....	94
1872.....	159,000	4,134	128,790	.718	31.15	27.63	.....	100
1873.....	90,000	2,340	89,100	.888	38.08	34.16	.....	125
1874.....	136,000	3,536	119,680	.782	33.85	30.09	.....	109
1875.....	180,000	4,680	144,000	.709	30.77	27.26	.....	99
1876.....	175,000	4,550	141,750	.762	31.15	29.32	.....	106
1877.....	176,000	4,576	128,480	.719	28.08	27.66	.....	100
1878.....	147,000	3,822	80,850	.550	.....	21.15	.....	77
1879.....	147,900	3,846	112,404	.760	.....	29.23	.....	106
1880.....	259,840	6,756	213,060	.820	.....	31.54	.....	114
1881.....	148,000	3,848	146,520	.900	.....	38.08	.....	138
1882.....	158,360	4,117	115,603	.730	.....	28.08	.....	102
1883.....	114,019	2,964	101,477	.890	.....	34.24	.....	124
1884.....	148,000	3,848	99,160	.670	.....	25.77	.....	93
1885.....	194,000	5,044	123,928	.640	.....	24.57	.....	89
1886.....	172,000	4,472	99,760	.580	.....	22.31	.....	81
1887.....	51,000	1,326	32,130	.630	.....	24.23	.....	88
1888.....	43,000	1,118	28,644	.670	.....	25.63	.....	93
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	76,038	1,977	43,342	.570	.....	21.92	.....	79
1894.....	69,030	1,795	53,153	.770	.....	29.61	.....	107
1895.....	97,303	2,530	42,813	.440	.....	16.92	.....	61
1862-66....	1,530,897	39,802	1,227,817	.516	30.85	19.85	a7.56	72
1867-70....	903,000	23,478	815,500	.705	34.73	27.12	b0.04	98
1871-74....	549,000	14,274	458,930	.750	32.15	28.85	.....	104
1875-78....	678,000	17,628	495,080	.691	28.08	26.67	.....	96
1879-82....	714,100	18,567	587,596	.823	.....	31.65	.....	115
1883-86....	628,019	16,328	424,325	.675	.....	25.99	.....	94
1887-90....	188,000	4,888	121,548	.646	.....	24.87	.....	90
1891-94....	290,136	7,544	192,990	.665	.....	25.58	.....	93
1862-94....	5,481,152	142,509	4,323,786	.664	30.34	25.50	.....	92
1862-66....	1,530,897	39,802	1,227,817	.516	30.85	19.85	.....	72
1867-73....	1,316,000	34,216	1,154,750	.716	33.75	27.54	.....	100
1874-80....	1,221,740	31,765	940,233	.737	29.60	28.34	.....	103
1881-87....	985,379	25,620	718,578	.729	.....	28.05	.....	102
1888-94....	427,136	11,106	282,408	.661	.....	25.43	.....	92
1876-78....	498,000	12,948	351,080	.687	27.11	26.43	.....	96
1893-95....	242,371	6,302	139,308	.575	.....	22.11	.....	80
1862.....	431,336	11,215	185,474	.296	16.54	11.40	.....	50
1872.....	159,000	4,134	128,790	.718	31.15	27.63	.....	100
1895.....	97,303	2,530	42,813	.440	.....	16.92	.....	61

## MICHIGAN.

1862-66....	4,797,746	124,741	4,255,300	.576	34.11	22.13	a29.63	85
1867-70....	4,311,000	112,086	3,613,780	.650	32.24	25.01	b 0.53	97
1871-74....	1,506,000	39,156	1,167,250	.697	29.81	26.81	.....	103
1875-78....	2,616,000	68,016	1,589,330	.576	23.37	22.15	.....	85
1879-82....	2,197,480	57,135	1,518,694	.690	.....	26.58	.....	103
1883-86....	1,548,858	40,270	962,802	.621	.....	23.91	.....	92
1887-90....	1,598,000	41,548	973,378	.609	.....	23.43	.....	90
1891-94....	2,905,610	75,547	1,565,078	.538	.....	20.72	.....	80

TABLE VIII. (a)—Continued.

MICHIGAN—Continued.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862-94....	21,480,724	558,499	15,645,662	.611	28.01	23.41	.....	90
1862-66....	4,797,746	124,741	4,255,300	.576	34.11	22.13	.....	85
1867-73....	5,519,000	143,494	4,551,570	.663	31.72	25.52	.....	98
1874-80....	4,133,360	107,467	2,574,554	.592	23.96	22.80	.....	88
1881-87....	2,920,978	75,946	1,989,762	.681	.....	26.22	.....	101
1888-94....	4,109,640	106,551	2,274,476	.553	.....	21.29	.....	82
1876-78....	1,966,000	51,116	1,140,880	.566	22.32	21.76	.....	84
1893-95....	2,082,134	54,135	1,053,144	.506	.....	19.45	.....	75
1862.....	900,652	23,417	387,280	.296	16.54	11.40	.....	44
1872.....	425,000	11,050	323,000	.674	29.23	25.93	.....	.....
1895.....	629,314	16,362	270,605	.430	.....	16.54	.....	64

## WISCONSIN.

1862-66....	371,648	9,663	265,684	.464	27.49	17.84	a15.54	87
1867-70....	683,000	17,758	424,826	.469	23.92	18.04	b 0.24	88
1871-74....	1,551,000	40,326	1,039,540	.584	25.78	22.47	.....	110
1875-78....	1,624,000	42,224	938,500	.541	22.23	20.86	.....	102
1879-82....	1,868,789	48,583	1,334,362	.714	.....	27.46	.....	134
1883-86....	1,135,792	29,531	702,238	.617	.....	23.78	.....	116
1887-90....	1,156,000	30,056	678,204	.586	.....	22.56	.....	110
1891-94....	2,874,778	74,744	1,630,202	.567	.....	21.81	.....	107
1862-94....	11,265,007	292,890	7,013,606	.587	23.95	22.33	.....	109
1862-66....	371,648	9,663	265,684	.464	27.49	17.84	.....	87
1867-73....	1,859,000	48,334	1,231,866	.540	25.49	20.77	.....	100
1874-80....	3,103,509	80,691	1,897,412	.588	23.51	22.66	.....	110
1881-87....	2,157,072	56,084	1,456,728	.675	.....	25.97	.....	127
1888-94....	3,773,778	98,118	2,161,916	.572	.....	22.03	.....	108
1876-78....	1,349,000	35,074	721,250	.521	20.56	20.05	.....	98
1893-95....	2,341,751	60,886	1,231,108	.526	.....	20.22	.....	99
1862.....	84,527	2,198	37,192	.503	16.92	11.66	.....	57
1872.....	439,000	11,414	263,400	.532	23.08	20.47	.....	.....
1895.....	904,362	23,513	416,007	.340	.....	14.17	.....	69

## MISSOURI.

1862-66....	527,488	13,715	379,274	.466	27.65	17.94	a2.86	69
1867-70....	292,000	7,592	266,440	.708	35.09	27.23	b0.03	105
1871-74....	136,000	3,536	99,770	.653	28.22	25.14	.....	97
1875-78....	161,400	4,197	99,978	.585	23.82	22.51	.....	87
1879-82....	275,042	7,151	196,088	.712	.....	27.42	.....	106
1883-86....	260,756	6,780	170,698	.654	.....	25.18	.....	97
1887-90....	300,000	7,800	202,452	.674	.....	25.96	.....	100
1891-94....	117,778	3,062	69,300	.588	.....	22.63	.....	87
1862-94....	2,070,464	53,833	1,484,000	.615	27.57	23.68	.....	91
1862-66....	527,488	13,715	379,274	.466	27.65	17.94	.....	66
1867-73....	403,000	10,478	348,960	.698	33.30	26.87	.....	104
1874-80....	326,142	8,480	203,591	.596	24.01	22.95	.....	88
1881-87....	465,056	12,092	327,343	.703	.....	27.07	.....	104
1888-94....	348,778	9,068	224,832	.644	.....	24.79	.....	96
1876-78....	101,400	2,637	60,978	.586	23.12	22.54	.....	87
1893-95....	87,143	2,266	51,037	.586	.....	22.52	.....	87
1862.....	218,750	5,687	105,000	.331	18.46	12.72	.....	49
1872.....	43,000	1,118	32,680	.674	29.23	25.93	.....	.....
1895.....	28,254	735	16,387	.580	.....	22.30	.....	86



TABLE VIII. (a).—Continued.

## IOWA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862.....	276,524	7,190	102,314	.255	14.33	9.80	.....	42
1863.....	155,911	4,055	145,000	.598	35.76	22.99	.....	98
1864.....	276,524	7,188	315,237	.733	43.86	28.20	.....	120
1865.....	298,646	7,765	244,890	.585	31.54	22.52	.....	95
1866.....	283,714	7,377	286,551	.750	38.84	28.85	.....	123
1867.....	314,000	8,164	345,400	.794	42.31	30.54	.....	130
1868.....	257,000	6,682	269,850	.773	40.38	32.76	.....	139
1869.....	100,000	2,600	131,200	1.081	50.46	41.58	.....	177
1870.....	200,000	5,200	138,000	.623	26.54	23.96	.....	102
1871.....	152,000	3,952	109,440	.660	27.69	25.39	.....	108
1872.....	162,000	4,212	111,780	.612	26.54	23.54	.....	100
1873.....	85,000	2,210	80,750	.852	36.54	32.78	.....	139
1874.....	107,000	2,782	78,110	.649	28.08	24.96	.....	106
1875.....	160,000	4,160	123,200	.682	29.62	26.24	.....	111
1876.....	140,000	3,640	109,200	.734	30.00	28.23	.....	120
1877.....	.....	.....	.....	.....	.....	.....	.....	83
1878.....	123,200	3,203	62,832	.510	.....	19.62	.....	113
1879.....	144,000	3,744	99,360	.690	.....	26.54	.....	119
1880.....	238,143	6,192	173,844	.730	.....	28.08	.....	152
1881.....	167,000	4,342	155,310	.930	.....	35.76	.....	118
1882.....	180,360	4,689	129,859	.720	.....	27.69	.....	131
1883.....	135,270	3,517	108,216	.800	.....	30.77	.....	93
1884.....	210,000	5,460	119,700	.570	.....	21.92	.....	111
1885.....	244,000	6,344	165,928	.680	.....	26.16	.....	101
1886.....	234,000	6,084	145,080	.620	.....	23.85	.....	109
1887.....	241,000	6,266	161,470	.670	.....	25.77	.....	108
1888.....	309,000	8,034	203,731	.659	.....	25.36	.....	108
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	330,211	8,585	201,423	.610	.....	23.46	.....	100
1894.....	221,136	5,750	165,852	.750	.....	28.83	.....	122
1895.....	.....	.....	.....	.....	.....	.....	.....	.....
1862-66....	1,291,319	33,575	1,093,992	.584	32.58	22.46	a9.45	95
1867-70....	871,000	22,646	884,450	.782	39.06	30.07	b0.05	128
1871-74....	506,000	13,156	380,080	.675	28.89	25.96	.....	110
1875-78....	423,200	11,003	295,232	.649	26.83	24.97	.....	106
1879-82....	729,503	18,967	558,373	.765	.....	29.44	.....	125
1883-86....	823,270	21,405	538,924	.655	.....	25.18	.....	107
1887-90....	1,100,000	28,600	730,402	.664	.....	25.54	.....	108
1891-94....	1,102,694	28,670	734,562	.666	.....	25.62	.....	109
1862-94....	6,846,986	178,022	5,216,015	.675	29.30	25.92	.....	110
1862-66....	1,291,319	33,575	1,093,992	.584	32.58	22.46	.....	95
1867-73....	1,270,000	33,020	1,186,420	.750	35.93	28.86	.....	123
1874-80....	912,343	23,721	646,546	.677	27.25	26.03	.....	111
1881-87....	1,411,630	36,702	985,563	.698	.....	26.85	.....	114
1888-94....	1,961,694	51,004	1,303,494	.664	.....	25.55	.....	109
1876-78....	263,200	6,843	172,032	.637	25.14	24.51	.....	104
1893-95....	775,245	20,156	479,230	.618	.....	23.78	.....	101
1862.....	276,524	7,190	102,314	.255	14.23	9.80	.....	42
1872.....	162,000	4,212	111,780	.612	26.54	23.54	.....	100
1895.....	223,898	5,821	111,949	.500	.....	19.23	.....	82

TABLE VIII. (a).—Continued.

## MINNESOTA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ney.	Gold.		
1862-66. . . .	122,482	3,185	99,204	.526	31.15	20.20	a3.58	66
1867-70. . . .	172,000	4,472	155,470	.701	34.77	26.90	b0.07	88
1871-74. . . .	183,000	4,758	150,630	.733	31.66	28.27		92
1875-78. . . .	302,000	7,852	185,776	.581	23.66	22.44		73
1879-82. . . .	288,730	7,507	192,485	.666		25.64		83
1883-86. . . .	243,360	6,327	154,029	.633		24.34		79
1887-90. . . .	224,000	5,824	135,034	.602		23.19		76
1891-94. . . .	1,055,596	27,445	580,474	.549		21.15		69
1862-94. . . .	2,591,168	67,370	1,653,102	.604	24.54	23.11		75
1862-66. . . .	122,482	3,185	99,204	.526	31.15	20.20		66
1867-73. . . .	310,000	8,060	273,250	.711	33.90	27.35		89
1874-80. . . .	539,130	14,017	341,053	.617	24.33	23.76		77
1881-87. . . .	392,960	10,217	253,237	.644		24.79		80
1888-94. . . .	1,226,596	31,891	686,358	.559		21.52		70
1876-78. . . .	253,000	6,578	148,536	.573	22.58	22.02		72
1893-95. . . .	807,298	20,990	432,782	.536		20.62		67
1862. . . . .	34,596	899	14,530	.289	16.16	11.13		36
1872. . . . .	46,000	1,196	41,400	.798	34.62	30.71		100
1895. . . . .	279,500	7,267	142,545	.510		19.62		64

## NEBRASKA.

1862-66. . . .	12,599	327	20,348	.986	62.23	37.95	a1.46	157
1867-70. . . .	52,800	1,373	64,528	.948	47.00	36.47	b0.03	151
1871-74. . . .	9,700	253	7,611	.699	30.08	26.80		111
1875-78. . . .	115,400	3,000	80,470	.658	26.82	25.34		105
1879-82. . . .	109,000	2,834	89,279	.819		31.51		130
1883-86. . . .	101,808	2,647	65,713	.645		24.83		103
1887-90. . . .	156,000	4,056	96,322	.617		23.75		98
1891-94. . . .	502,372	13,062	273,710	.544		20.95		86
1862-94. . . .	1,059,679	27,552	697,981	.632	25.33	24.33		100
1862-66. . . .	12,599	327	20,348	.986	62.23	37.95		157
1867-73. . . .	62,500	1,625	72,139	.931	44.39	35.82		198
1874-80. . . .	190,060	4,942	139,387	.701	28.20	26.96		111
1881-87. . . .	170,148	4,424	116,815	.686		26.40		109
1888-94. . . .	624,372	16,234	349,292	.559		21.52		89
1876-78. . . .	30,400	790	16,720	.537	21.16	20.64		85
1893-95. . . .	307,667	7,999	173,568	.564		21.70		90
1862. . . . .								
1872. . . . .	3,500	91	2,485	.630	27.31	24.22		100
1895. . . . .	56,481	1,469	36,713	.659		24.99		103

TABLE VIII. (a).—Continued.

## KANSAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862-66. . .	22,567	631	19,580	.548	31.03	19.58	a 13.81	87
1867-70. . .	105,400	2,951	75,092	.559	25.45	19.95	b 0.80	89
1871-74. . .	897,000	25,116	561,730	.562	22.37	20.06	.....	89
1875-78. . .	9,710,000	271,880	3,820,724	.376	14.05	13.42	.....	55
1879-82. . .	7,650,366	214,210	3,509,329	.459	.....	16.38	.....	73
1883-86. . .	14,136,500	395,822	5,286,414	.374	.....	13.36	.....	59
1887-90. . .	7,270,000	203,560	3,305,414	.455	.....	16.24	.....	72
1891-94. . .	4,244,316	118,281	1,743,924	.413	.....	14.74	.....	66
1862-94. . .	44,016,149	1,232,451	18,322,207	.411	14.87	14.66	.....	65
1862-66. . .	22,567	631	19,580	.548	31.03	19.58	.....	87
1867-73. . .	582,400	16,307	363,822	.524	22.31	18.71	.....	83
1874-80. . .	12,863,366	360,174	5,477,473	.411	15.21	14.69	.....	65
1881-87. . .	20,020,500	560,574	7,837,474	.391	.....	13.98	.....	62
1888-94. . .	10,527,316	294,765	4,623,858	.439	.....	15.69	.....	69
1876-78. . .	8,330,400	233,251	3,116,924	.365	13.37	13.04	.....	58
1893-95. . .	2,843,988	79,632	1,150,057	.404	.....	14.44	.....	64
1862. . . . .	4,713	132	2,498	.365	18.92	13.04	.....	58
1872. . . . .	81,000	2,268	5,751	.390	.....	13.57	.....	60
1895. . . . .	731,830	20,491	278,095	.630	25.36	22.49	.....	100

TABLE VIII. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of buckwheat grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of buckwheat in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOL- LARS.		Average Value Per Bushel in Cents.	Average Value Per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Per Bus. in Gold.	Dollars Per Ton, Gold.
						Cur'ncy		
1862.....	148,355	3,540,287	92,047	1,664,642	1,146,938	47.0	.324	12.46
1863.....	198,709	2,260,032	58,761	1,963,975	1,262,836	86.9	.559	21.49
1864.....	204,573	3,154,380	82,014	3,580,013	1,657,546	113.5	.525	20.21
1865.....	199,702	3,578,195	93,033	3,179,804	2,270,380	88.8	.635	24.44
1866.....	223,396	4,176,617	108,592	4,353,882	3,234,934	104.2	.774	29.79
1867.....	218,141	3,481,000	90,506	3,814,720	2,754,228	109.6	.791	30.43
1868.....	179,050	3,272,000	85,072	3,120,210	2,299,595	95.4	.703	27.03
1869.....	189,120	2,759,000	71,734	2,390,906	1,970,107	86.6	.714	27.46
1870.....	137,747	2,554,800	66,425	1,669,988	1,507,999	65.3	.590	22.70
1871.....	103,468	1,690,600	43,956	1,279,734	1,173,516	75.7	.694	26.69
1872.....	105,758	1,695,500	44,083	1,280,155	1,135,497	75.5	.669	25.75
1873.....	112,637	1,335,600	34,726	1,172,642	1,051,860	87.8	.787	30.29
1874.....	101,554	1,453,000	37,778	1,149,450	1,021,861	79.1	.703	27.05
1875.....	133,327	2,239,000	58,214	1,710,640	1,515,627	76.3	.677	26.03
1876.....	141,518	2,108,800	54,829	1,506,998	1,417,991	71.4	.672	25.86
1877.....	116,319	1,627,000	42,302	990,380	975,524	60.8	.599	23.06
1878.....	143,500	2,274,720	59,143	1,212,520	1,212,520	53.3	.525	20.19
1879.....	123,700	2,172,400	56,483	1,501,432	.....	69.1	.691	26.59
1880.....	139,401	2,411,652	62,703	1,647,762	.....	68.3	.683	26.28
1881.....	142,200	1,600,000	41,600	1,460,110	.....	91.3	.912	35.10
1882.....	148,161	1,668,360	43,377	1,200,390	.....	71.9	.719	27.67
1883.....	145,268	1,066,171	27,720	889,956	.....	.....	.834	32.10
1884.....	131,296	1,482,000	38,532	875,710	.....	.....	.591	22.73
1885.....	145,760	1,703,000	44,278	1,101,615	.....	.....	.647	24.88
1886.....	145,002	1,522,000	39,572	884,060	.....	.....	.581	22.36
1887.....	130,520	1,295,000	33,670	832,850	.....	.....	.643	24.74
1888.....	133,929	1,543,000	40,118	962,235	.....	.....	.623	23.99
1889.....	.....	.....	.....	.....	.....	.....	.632	24.33
1890.....	.....	.....	.....	.....	.....	.....	.632	24.33
1891.....	.....	.....	.....	.....	.....	.....	.578	22.21
1892.....	.....	.....	.....	.....	.....	.....	.578	22.21
1893.....	220,403	3,099,151	80,578	1,731,794	.....	.....	.559	21.49
1894.....	178,871	1,891,719	49,185	1,150,492	.....	.....	.608	23.39
1895.....	161,711	2,519,293	65,501	1,212,752	.....	.....	.481	18.53
1862-66....	974,735	16,709,511	434,447	14,742,316	9,572,634	88.2	.573	22.03
1867-70....	724,058	12,066,800	313,737	10,995,824	8,531,929	91.1	.707	27.19
1871-74....	423,417	6,174,700	160,543	4,881,981	4,582,734	79.1	.709	27.30
1875-78....	534,664	8,249,520	214,488	5,420,438	5,121,662	65.7	.621	23.88
1879-82....	553,462	7,852,412	204,163	5,809,694	.....	.....	.740	28.46
1883-86....	567,326	5,773,171	150,102	3,751,941	.....	.....	.650	24.99
1887-90....	528,898	5,676,000	147,576	3,590,170	.....	.....	.632	24.33
1891-94....	798,548	9,981,740	259,525	5,764,572	.....	.....	.578	22.21
1862-66....	974,735	16,709,511	434,447	14,742,316	9,572,634	88.2	.573	22.03
1867-73....	1,045,921	16,788,500	436,502	14,728,355	11,892,802	87.1	.708	27.24
1874-80....	899,319	14,286,572	371,452	9,719,082	9,292,717	68.0	.650	25.01
1881-87....	988,207	10,336,531	268,749	7,245,291	.....	.....	.701	26.96
1888-94....	1,106,926	14,362,740	373,431	8,521,892	.....	.....	.593	22.82
1862-94....	5,105,108	72,483,854	1,884,581	54,956,936	46,525,336	75.8	.642	24.69
1867-94....	4,130,373	55,774,343	1,450,134	40,214,620	36,952,702	69.6	.662	25.48
1867-78....	1,682,139	26,491,020	688,768	21,298,243	18,036,325	80.4	.681	26.18
1879-86....	1,120,788	13,625,583	354,265	9,561,635	.....	.....	.702	26.99
1887-94....	1,327,446	15,657,740	407,101	9,354,742	.....	.....	.597	22.98
1867-78....	1,682,139	26,491,020	688,768	21,298,243	18,036,325	80.4	.681	26.18
1879-82....	653,462	7,852,412	204,163	5,809,694	.....	.....	.740	28.46
1883-94....	1,894,772	21,430,911	557,203	13,106,683	.....	.....	.611	23.52
1867-80....	1,945,240	31,075,072	807,954	24,447,457	21,185,519	78.7	.681	26.22
1881-94....	2,185,133	24,699,271	642,180	15,767,183	.....	.....	.638	24.55
1876-78....	401,337	6,010,520	156,274	3,709,798	3,606,035	61.6	.599	23.07
1893-95....	560,985	7,510,163	195,264	4,095,038	.....	.....	.543	20.97



TABLE VIII. (c).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the buckwheat raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Change of Freight Rates. Per Ton. (3)	Corresponding to Column —			Average of Index Numbers for Ten States.	According to Relative Importance. (a)
		Per Ton.	Per Bush		(1)	(2)	(3)		
1862-66 ...	22.03	21.61	.562	18.77	86	81	91	86	77
1867-70 ...	27.19	26.37	.686	26.37	106	99	128	104	98
1871-74 ...	27.30	27.68	.720	23.02	106	103	112	105	105
1875-78 ...	23.88	26.02	.577	23.78	93	98	115	95	90
1879-82 ...	28.46	28.62	.744	26.44	111	107	129	111	110
1883-86 ...	24.99	25.29	.658	22.24	97	95	108	96	91
1887-90 ...	24.33	24.69	.642	22.26	94	93	108	93	91
1891-94 ...	22.21	22.81	.591	22.62	86	85	110	88	88
1862-66 ...	22.03	21.61	.561	18.77	86	81	91	86	77
1867-73 ...	27.24	26.95	.700	25.87	106	101	126	110	100
1874-80 ...	25.01	25.06	.652	23.04	97	94	112	96	91
1881-87 ...	26.96	27.31	.710	23.87	105	102	111	103	90
1888-94 ...	22.82	23.37	.608	22.56	88	88	109	90	91
1862-94 ...	24.69	24.69	.641	22.76	96	92	110	94	92
1876-78 ...	23.07	23.48	.610	21.50	89	88	105	90	88
1893-95 ...	20.97	21.55	.560	20.78	81	81	101	85	88
1862 ..... 1862	12.46	12.38	.321	8.14	48	46	40	46	49
1872 ..... 1872	25.75	26.69	.694	20.55	100	100	100	100	100
1895 ..... 1895	18.53	18.54	.482	15.69	72	70	76	77	75

(a) Computed by Sauerbeck's method.

TABLE VIII. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the buckwheat raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency and its average home or farm value per bushel and ton in gold and currency, and simple index numbers, showing the percentage which the average gold value each year or period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862	5,976,305	155,384	3,227,204	.372	20.77	14.31		
1863	5,378,675	139,845	3,926,433	.409	28.00	18.05		51
1864	5,677,490	147,615	6,453,414	.526	43.72	20.24		71
1865	5,535,553	143,924	5,258,775	.678	36.54	26.08		92
1866	6,476,597	168,392	5,958,469	.684	35.38	26.29		96
1867	6,541,000	170,066	6,802,640	.741	40.00	27.77		98
1868	5,886,000	153,036	5,944,860	.744	38.84	28.63		101
1869	5,590,000	145,340	4,807,400	.709	33.07	27.25		97
1870	3,435,000	89,310	2,782,350	.731	31.17	27.32		97
1871	3,091,000	80,366	2,410,980	.715	30.00	27.51		97
1872	2,781,000	72,306	2,308,230	.736	32.06	28.31		100
1873	2,947,000	76,622	2,269,190	.691	29.60	26.56		94
1874	2,917,000	75,842	2,333,600	.713	30.75	27.43		97
1875	3,750,000	97,500	2,512,500	.594	25.77	22.83		81
1876	3,750,000	97,500	2,775,000	.696	28.46	26.78		95
1877	4,200,000	109,200	3,108,000	.729	28.46	28.03		99
1878	5,366,000	139,516	2,683,000	.500	19.23	19.23		68
1879	5,152,000	133,952	2,782,080	.540		20.77		73
1880	5,135,652	133,527	2,721,896	.530		20.36		72
1881	3,338,000	86,788	2,737,160	.820		31.53		111
1882	3,471,520	90,260	2,603,640	.750		28.84		102
1883	2,360,634	61,376	2,030,145	.860		33.07		117
1884	4,249,000	110,474	2,379,440	.560		21.53		76
1885	4,609,000	119,834	2,442,888	.530		20.39		72
1886	4,543,000	118,118	2,362,360	.520		20.00		71
1887	4,130,000	107,380	2,188,900	.530		20.38		72
1888	4,514,000	117,364	2,798,677	.620		23.84		84
1889								
1890								
1891								
1892								
1893	4,111,027	106,887	2,466,616	.600		23.07		81
1894	4,513,569	117,887	2,437,327	.540		20.77		73
1895	5,982,370	155,542	2,632,243	.440		16.93		60
1862-66	29,044,620	755,160	24,824,295	.548	32.87	21.08	a-51.04	75
1867-70	21,452,000	557,752	20,337,250	.735	36.46	28.26	b-1.44	100
1871-74	11,736,000	305,136	9,322,000	.730	30.55	28.08		99
1875-78	17,066,000	443,716	11,078,500	.619	24.97	23.82		84
1879-82	17,097,172	444,527	10,844,776	.634		24.39		86
1883-86	15,761,634	409,802	9,214,833	.585		22.46		79
1887-90	17,288,000	449,488	9,975,154	.577		22.19		78
1891-94	17,249,192	448,479	9,807,886	.569		21.87		77
1862-66	29,044,620	755,160	24,824,295	.548	32.87	21.08		75
1867-73	30,271,000	787,046	27,325,650	.731	34.72	28.13		99
1874-80	30,270,652	787,037	18,916,076	.600	24.04	24.04		85
1881-87	26,701,154	694,230	16,744,533	.627		24.12		85
1888-94	30,407,192	790,587	17,594,140	.578		22.25		79
1862-94	146,694,618	3,814,060	105,404,694	.615	27.63	23.72		84
1867-94	117,649,998	3,058,900	80,580,399	.626		24.37		86
1876-78	13,316,000	346,216	8,566,000	.627	24.74	24.12		85
1893-95	14,606,966	379,781	7,536,186	.516		19.84		70
1862	5,976,305	155,384	3,227,204	.370	20.77	14.31		51
1872	2,781,000	72,306	2,308,230	.736	31.92	28.31		100
1895	5,982,370	155,542	2,632,243	.440		16.92		60



TABLE VIII. (d)—Continued.

## VIRGINIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66. . . .	162,686	4,230	138,278	.631	32.69	24.28	a-1.23	115
1867-70. . . .	417,000	10,842	386,680	.712	35.66	27.49	b-0.21	130
1871-74. . . .	145,000	3,770	102,900	.632	27.29	24.31		105
1875-78. . . .	190,850	4,962	115,989	.574	23.37	22.09		104
1879-82. . . .	710,677	18,477	474,603	.667		25.61		121
1883-86. . . .	739,065	19,216	496,001	.671		25.81		122
1887-90. . . .	880,000	22,880	527,844	.599		23.07		110
1891-94. . . .	280,582	7,295	152,672	.543		20.92		97
1862-94. . . .	3,525,860	91,672	2,394,967	.639	26.12	24.45		116
1862-66. . . .	162,686	4,230	138,278	.631	32.69	24.28		115
1867-73. . . .	522,000	13,572	461,580	.713	34.01	27.44		130
1874-80. . . .	589,627	15,330	375,628	.609	24.53	23.42		111
1881-87. . . .	1,288,965	33,513	857,765	.665		25.60		121
1888-94. . . .	962,582	25,027	561,716	.583		22.44		106
1876-78. . . .	140,250	3,646	82,087	.571	22.51	21.95		64
1893-95. . . .	188,157	4,892	102,292	.544		20.91		61
1862. . . . .								
1872. . . . .	32,000	832	19,840	.551	23.84	21.17		100
1895. . . . .	48,066	1,250	25,956	.540		20.76		61

## CALIFORNIA.

1862-66. . . .	14,850	386	16,929	1.140		43.85	a-0.12	103
1867-70. . . .	51,500	1,339	50,075	.972		37.40	b-0.01	88
1871-74. . . .	84,100	2,187	97,668	1.161		44.66		105
1875-78. . . .	35,000	910	52,500	1.500		57.69		135
1879-82. . . .	49,080	1,276	39,600	.806		31.03		77
1883-86. . . .	78,806	2,049	56,930	.722		27.78		65
1887-90. . . .								
1891-94. . . .	34,590	899	32,290	.933		35.92		84
1862-94. . . .	347,926	9,046	345,992	.994		38.24		90
1862-66. . . .	14,850	386	16,929	1.140		43.85		103
1867-73. . . .	115,600	3,006	123,743	1.110		41.17		96
1874-80. . . .	72,680	1,890	89,760	1.235		47.49		111
1881-87. . . .	110,206	2,865	83,270	.756		29.06		63
1888-94. . . .	34,590	899	32,290	1.934		35.92		84
1893-95. . . .	39,075	1,016	30,084	.770		29.61		69
1862. . . . .	14,850	386	16,929	1.140		43.86		103
1872. . . . .	19,800	515	21,978	1.110		42.68		100
1895. . . . .	21,780	566	13,339	.640		24.63		58

Georgia—No buckwheat reported for Georgia.

Texas—No buckwheat reported for Texas.



TABLE VIII. (e).

An exhibit of the total product in bushels and tons of the buckwheat raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Num- bers.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency	Gold.	
1862-66.....	66,241,321	1,722,274	59,450,086	.580	34.52	22.38	75
1867-70.....	47,824,100	1,243,427	47,772,033	.771	38.42	29.65	99
1871-74.....	20,265,500	526,904	16,896,024	.751	32.02	28.90	97
1875-78.....	27,231,850	708,028	17,801,789	.622	25.14	23.92	80
1879-82.....	31,769,550	826,007	21,143,972	.666	.....	25.59	86
1883-86.....	29,711,091	772,489	17,760,923	.595	.....	22.99	77
1887-90.....	32,462,000	844,012	19,205,758	.589	.....	22.76	76
1891-94.....	31,911,948	829,710	17,966,904	.563	.....	21.90	73
1862-66.....	66,241,321	1,722,274	59,450,086	.580	34.52	22.38	75
1867-73.....	63,047,600	1,639,238	60,527,237	.771	36.92	29.66	100
1874-80.....	50,787,250	1,320,469	32,483,244	.607	24.60	23.42	79
1881-87.....	50,561,241	1,314,592	32,500,920	.642	.....	24.72	83
1888-94.....	56,779,948	1,476,278	33,036,002	.582	.....	22.38	75
1862-94.....	287,417,360	7,472,851	217,997,489	.638	29.17	24.55	82
1867-94.....	221,176,039	5,750,577	158,547,403	.656	27.57	25.23	85
1867-78.....	95,321,450	2,478,359	82,469,846	.724	33.28	27.85	93
1879-86.....	61,480,641	1,598,496	38,904,895	.632	.....	24.34	82
1887-94.....	64,373,948	1,673,722	37,172,662	.577	.....	22.21	75
1867-78.....	95,321,450	2,478,359	82,469,846	.724	33.28	27.85	93
1879-82.....	31,769,550	826,007	21,143,972	.665	.....	25.59	86
1883-94.....	94,085,039	2,446,211	54,933,585	.584	.....	22.45	75
1867-80.....	113,834,850	2,959,707	93,010,481	.699	31.42	26.88	90
1881-94.....	107,341,189	2,790,870	65,536,922	.610	.....	23.41	79
1876-78.....	21,076,250	547,982	13,602,087	.616	24.82	23.71	80
1893-95.....	26,576,950	691,001	13,665,932	.514	.....	19.77	66
1862.....	12,677,586	329,617	7,255,992	.407	22.01	15.66	53
1872.....	4,988,600	129,704	4,355,208	.775	33.58	29.80	100
1895.....	10,621,176	276,141	4,682,480	.441	.....	16.96	57

TABLE VIII. (f).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the buckwheat raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seven States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	22.38	22.18	.577	16.65	75	75	88	96	73
1867-70....	29.65	29.48	.766	25.11	99	99	122	101	98
1871-74....	28.90	28.39	.738	20.80	97	95	109	101	97
1875-78....	23.92	23.91	.621	20.53	80	71	108	100	81
1879-82....	25.59	25.68	.668	24.94	86	86	131	90	86
1883-86....	22.99	22.95	.597	20.70	77	78	109	84	77
1887-90....	22.76	22.81	.593	21.04	76	77	111	88	77
1891-94....	21.90	21.64	.562	21.64	73	73	114	81	73
1862-66....	22.38	22.18	.577	16.65	75	75	88	96	73
1867-73....	29.66	29.50	.769	24.33	100	99	128	106	99
1874-80....	23.42	23.99	.623	21.54	79	80	113	93	79
1881-87....	24.72	24.74	.643	22.36	83	82	118	89	83
1888-94....	22.38	22.39	.582	21.07	75	76	111	85	75
1862-94....	24.55	24.55	.638	21.05	82	82	111	93	82
1876-78....	23.71	24.24	.630	20.04	80	81	105	57	80
1893-95....	19.77	19.78	.514	19.29	66	66	100	66	66
1862.....	15.66	15.01	.390	9.54	53	50	50	68	52
1872.....	29.80	29.87	.777	19.05	100	100	100	100	100
1895.....	16.96	16.99	.442	14.75	57	56	79	56	57

(a) Computed by Sauerbeck's method.

TABLE VIII. (g).

An exhibit of the total product in bushels and tons of the buckwheat raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Cur'ncy.	Gold.	
1862-66.....	82,950,832	2,156,721	74,192,404	.578	34.40	22.25	77
1867-70.....	59,890,900	1,557,164	58,767,857	.758	37.74	29.15	101
1871-74.....	26,440,200	687,447	21,778,005	.741	31.68	28.52	99
1875-78.....	35,481,370	922,516	23,222,227	.622	25.17	23.91	83
1879-82.....	39,621,962	1,030,170	26,953,666	.679	.....	26.26	91
1883-86.....	35,484,262	922,591	21,512,864	.606	.....	23.32	81
1887-90.....	38,138,000	991,588	22,795,928	.597	.....	22.99	80
1891-94.....	41,893,688	1,089,235	23,731,476	.566	.....	21.79	76
1862-66.....	82,950,832	2,156,721	74,192,404	.578	34.40	22.25	77
1867-73.....	79,836,100	2,075,740	75,255,592	.758	36.25	29.15	101
1874-80.....	65,073,822	1,691,921	42,202,326	.618	24.94	23.77	83
1881-87.....	60,897,772	1,583,341	39,746,211	.652	.....	25.10	87
1888-94.....	71,142,688	1,849,709	41,557,894	.584	.....	22.47	78
1862-94.....	359,901,214	9,357,432	272,954,427	.639	29.17	24.68	86
1867-94.....	276,950,382	7,200,711	198,762,023	.658	27.60	25.40	88
1867-78.....	121,812,470	3,167,127	103,768,089	.715	32.77	27.40	95
1879-86.....	75,106,224	1,952,761	48,466,530	.645	.....	24.81	86
1887-94.....	80,031,688	2,080,823	46,527,404	.518	.....	22.36	78
1867-78.....	121,812,470	3,167,127	103,768,089	.715	32.77	27.40	95
1879-82.....	39,621,962	1,030,170	26,953,666	.680	.....	26.14	99
1883-94.....	115,515,950	3,003,414	68,040,268	.589	.....	22.66	79
1867-80.....	144,909,922	3,767,661	117,457,918	.695	31.18	26.74	93
1881-94.....	132,040,460	3,433,050	81,304,105	.615	.....	23.68	82
1876-78.....	27,086,770	704,256	17,311,885	.612	24.58	23.57	82
1893-95.....	34,087,113	886,263	17,760,970	.521	.....	20.04	70
1862.....	16,217,873	421,664	8,920,634	.383	21.15	14.97	52
1872.....	6,684,100	173,787	5,635,363	.749	31.85	28.77	100
1895.....	13,140,469	341,642	5,895,232	.448	.....	17.25	60

TABLE VIII. (h).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the buckwheat raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY—				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seventeen States.	According to Relative Importance. (a).
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	22.25	22.07	.574	17.08	77	75	88	89	71
1867-70....	29.15	28.86	.750	25.36	101	99	131	103	98
1871-74....	28.52	28.25	.735	21.00	99	96	108	104	99
1875-78....	23.91	24.31	.632	21.16	83	83	109	97	83
1879-82....	26.26	26.27	.682	25.24	91	89	130	104	95
1883-86....	23.32	23.52	.612	21.11	81	80	109	92	80
1887-90....	22.99	24.19	.629	22.29	80	83	115	92	79
1891-94....	21.79	21.87	.569	21.83	76	74	113	86	76
1862-66....	22.25	22.07	.574	17.08	77	75	88	89	71
1867-73....	29.15	25.06	.652	20.64	101	102	106	102	99
1874-80....	23.77	24.20	.629	21.84	83	95	113	95	82
1881-87....	25.10	25.25	.656	22.67	87	99	117	99	85
1888-94....	22.47	22.59	.587	21.37	78	91	111	91	79
1862-94....	24.68	24.68	.642	21.49	86	93	111	93	84
1876-78....	23.57	24.09	.626	20.33	82	80	105	80	82
1893-95....	20.04	19.13	.498	18.56	70	65	96	80	70
1862.....	14.97	14.48	.377	9.24	52	49	48	51	51
1872.....	28.77	20.23	.760	19.35	100	100	100	100	100
1895.....	17.25	17.30	.450	14.94	60	59	72	78	60

(a) Computed by Sauerbeck's method.



TABLE VIII. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of buckwheat raised in the states of the American Union not included in the ten given in Tables (a) to (c), and referred to in tables as the Exterior States, together with the total product of buckwheat in said states in bushels and tons, and its total home or farm value in currency and gold, and its average home or farm value per bushel and ton in gold and currency.

Years.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		AVERAGE VALUE IN		
		Bushels.	Tons.	Currency.	Gold.	Cents Per Bus.		Dollars, Per Ton in Gold.
						Cur'ncy	Gold.	
1862.....	661,422	15,223,469	395,811	8,947,255	6,169,923	58.8	40.5	15.56
1863.....	855,351	13,526,090	351,678	10,696,494	6,877,846	79.1	50.8	19.56
1864.....	847,127	15,546,160	404,200	18,406,750	8,522,325	118.4	54.8	21.08
1865.....	857,382	14,752,824	383,573	14,883,521	10,626,834	180.8	72.0	27.70
1866.....	822,228	18,615,222	483,996	17,810,259	13,233,008	95.7	71.1	27.34
1867.....	1,009,685	17,878,000	464,828	19,654,930	14,190,859	109.9	79.3	30.53
1868.....	934,943	16,591,700	431,384	17,694,105	13,044,237	106.7	78.6	30.24
1869.....	839,573	14,672,100	381,475	13,423,359	11,062,961	91.5	75.4	29.00
1870.....	399,245	7,286,700	189,454	6,055,056	5,470,051	83.1	75.0	28.87
1871.....	310,447	6,638,100	172,591	5,620,534	5,156,328	84.7	77.6	29.88
1872.....	342,739	6,438,000	167,388	5,467,463	4,852,124	84.9	75.3	28.98
1873.....	341,515	6,502,100	169,055	5,209,401	4,675,304	80.2	71.9	27.65
1874.....	351,036	6,563,600	170,653	5,328,435	4,739,643	81.2	72.2	27.77
1875.....	442,203	7,843,100	203,921	5,455,627	4,839,671	69.5	61.7	23.73
1876.....	524,923	7,560,000	196,560	5,514,600	5,189,239	72.9	68.6	26.40
1877.....	533,604	8,550,000	222,300	6,008,430	5,918,304	70.3	69.2	26.62
1878.....	529,600	9,972,100	259,274	5,241,600	5,241,600	52.6	51.8	19.91
1879.....	516,200	10,967,600	285,172	6,354,759	.....	.....	57.9	22.28
1880.....	683,401	12,205,883	317,353	7,034,726	.....	.....	57.6	22.17
1881.....	686,615	7,886,200	205,041	6,745,595	.....	.....	85.5	32.90
1882.....	698,951	9,350,993	243,126	6,838,472	.....	.....	73.1	23.13
1883.....	712,081	6,602,783	171,672	5,414,024	.....	.....	82.0	31.54
1884.....	748,107	9,634,000	250,484	5,673,310	.....	.....	58.9	22.65
1885.....	768,634	10,923,000	283,998	5,955,748	.....	.....	54.5	20.97
1886.....	772,913	10,347,000	269,022	5,580,460	.....	.....	53.9	20.74
1887.....	779,986	9,549,000	248,274	5,289,470	.....	.....	55.3	21.30
1888.....	778,701	10,507,000	273,182	6,665,412	.....	.....	63.4	24.40
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	595,211	9,033,160	234,862	5,342,656	.....	.....	59.1	22.75
1894.....	610,361	10,776,481	280,188	5,889,746	.....	.....	54.7	21.02
1895.....	601,566	12,822,106	333,375	5,723,573	.....	.....	44.6	17.16
1862-66....	4,043,510	77,663,765	2,019,258	70,744,259	45,429,936	91.1	58.5	22.49
1867-70....	3,183,446	56,428,500	1,467,141	56,827,450	43,763,108	100.7	77.5	29.83
1871-74....	1,345,737	26,141,800	679,687	21,625,833	19,423,399	82.7	74.3	28.58
1875-78....	2,030,530	33,925,200	882,655	22,220,257	21,188,814	65.5	62.4	24.02
1879-82....	2,585,167	40,410,676	1,050,692	26,973,552	.....	.....	66.7	25.67
1883-86....	3,001,735	37,506,783	975,176	22,623,542	.....	.....	60.3	23.20
1887-90....	3,117,374	40,112,000	1,042,912	23,909,764	.....	.....	69.6	22.93
1891-94....	2,411,144	39,619,282	1,030,101	22,464,804	.....	.....	56.7	21.81
1862-66....	4,043,510	77,663,765	2,019,258	70,744,259	45,429,936	91.1	58.5	22.49
1867-73....	4,178,147	76,006,700	1,976,175	73,124,848	58,451,864	96.2	76.9	29.58
1874-80....	3,580,967	63,662,283	1,655,233	40,938,177	39,819,899	64.3	62.5	24.05
1881-87....	5,167,287	64,292,976	1,671,617	41,497,079	.....	.....	64.5	24.82
1888-94....	4,748,532	70,182,282	1,824,739	41,085,098	.....	.....	58.5	22.52
1862-94....	21,718,443	351,808,006	9,147,022	267,389,461	225,781,919	76.0	64.2	24.68
1867-94....	17,674,933	274,144,241	7,127,749	196,645,202	180,351,983	71.7	65.8	25.80
1867-78....	6,559,513	116,495,500	3,028,883	100,673,540	84,380,321	86.4	72.4	27.85
1879-86....	5,586,902	77,917,450	2,025,853	49,597,094	.....	.....	63.6	24.48
1887-94....	5,528,518	79,731,282	2,073,013	46,374,568	.....	.....	58.2	22.37
1867-78....	6,559,513	116,495,500	3,028,883	100,673,540	84,380,321	86.4	72.4	27.85
1879-82....	2,585,167	40,410,676	1,050,677	26,973,552	.....	.....	66.7	25.67
1883-94....	8,530,253	117,238,065	3,048,189	68,998,110	.....	.....	58.8	22.63
1867-80....	7,750,114	139,668,983	3,631,393	114,063,025	98,269,806	81.7	70.4	27.06
1881-94....	9,915,819	134,475,258	3,496,356	82,582,177	.....	.....	61.4	23.62
1876-78....	1,588,127	26,082,100	678,134	16,764,630	16,349,143	64.3	62.6	24.11
1893-95....	1,807,138	32,631,747	848,425	16,955,975	.....	.....	52.0	19.98

TABLE VIII. (j).

An exhibit by years and certain periods of years of the acres of buck-wheat raised in the United States, its average yield per acre in bushels, together with its total farm or home value in dollars, currency, and its average home or farm value per bushel and ton, gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Bushels.	AVERAGE		
		Bushels.	Tons.			Value Per Bushel in Cents.		Value Per Ton in Dolls. Gold.
						Cur'ncy.	Gold.	
1862.....	809,777	18,763,756	487,858	10,611,897	23.2	56.5	.389	14.99
1863.....	1,054,060	15,786,122	410,439	12,660,469	15.0	80.2	.515	19.83
1864.....	1,051,700	18,700,540	489,214	21,986,763	17.7	116.1	.544	20.94
1865.....	1,057,084	18,331,019	476,006	18,063,325	17.3	98.5	.703	27.06
1866.....	1,045,624	22,791,839	592,588	22,164,121	21.8	97.5	.722	28.13
1867.....	1,227,826	21,359,000	555,334	23,469,650	17.4	109.9	.793	30.51
1868.....	1,113,993	19,863,700	516,456	20,814,315	17.8	104.8	.772	29.71
1869.....	1,028,693	17,431,100	453,209	15,814,265	16.9	90.7	.748	28.76
1870.....	536,992	9,841,500	255,879	7,725,044	18.3	78.5	.709	27.27
1871.....	413,915	8,328,700	216,547	6,900,268	20.1	82.8	.761	29.28
1872.....	448,497	8,133,500	211,471	6,747,618	18.1	82.9	.736	28.31
1873.....	454,152	7,837,700	203,781	6,382,043	17.2	81.4	.730	28.10
1874.....	452,590	8,016,600	208,431	6,477,885	17.7	80.8	.718	27.64
1875.....	575,530	10,082,100	262,135	7,166,267	17.5	71.1	.630	24.24
1876.....	666,441	9,668,809	251,389	7,021,498	14.5	72.6	.683	26.28
1877.....	649,923	10,177,000	264,602	6,998,810	15.6	68.8	.677	26.05
1878.....	673,100	12,246,820	318,417	6,454,120	18.2	52.7	.527	20.27
1879.....	639,900	13,140,000	341,640	7,856,191	20.5	59.8	.598	23.00
1880.....	822,802	14,617,535	380,056	8,682,488	17.7	.....	.594	22.85
1881.....	828,815	9,486,200	246,641	8,205,705	11.4	.....	.865	33.27
1882.....	847,112	11,019,353	286,503	8,038,862	13.0	.....	.730	28.08
1883.....	857,349	7,668,954	199,292	6,303,980	8.9	.....	.822	31.62
1884.....	879,403	11,116,000	289,016	6,549,020	12.6	.....	.589	22.66
1885.....	914,394	12,626,000	328,276	7,057,363	13.8	.....	.559	21.50
1886.....	917,915	11,869,000	308,594	6,465,120	12.9	.....	.545	20.95
1887.....	910,506	10,844,000	281,944	6,122,320	11.9	.....	.565	21.71
1888.....	912,630	12,050,000	313,300	7,627,647	13.2	.....	.633	24.35
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	815,614	12,132,311	315,440	7,074,450	14.9	.....	.583	22.43
1894.....	789,232	12,668,200	329,373	7,040,238	16.1	.....	.556	21.37
1895.....	763,277	15,341,399	398,877	6,936,325	21.1	.....	.452	17.39
1862-66....	5,018,245	94,373,276	2,453,705	85,486,575	18.8	90.6	.583	22.41
1867-70....	3,907,504	68,495,300	1,780,878	67,823,274	17.5	99.0	.763	29.37
1871-74....	1,769,154	32,316,590	849,230	26,507,814	18.2	82.0	.736	28.33
1875-78....	2,564,994	42,174,720	1,096,543	27,640,695	16.4	65.5	.624	23.99
1879-82....	3,138,629	48,263,088	1,254,840	32,783,246	15.4	.....	.679	26.13
1883-86....	3,569,061	43,279,954	1,125,278	26,375,483	12.1	.....	.600	23.45
1887-90....	3,646,272	45,788,000	1,190,488	27,499,934	12.6	.....	.600	23.10
1891-94....	3,209,692	49,601,022	1,280,626	28,229,376	15.5	.....	.569	21.87
1862-66....	5,018,245	94,373,276	2,453,705	85,486,575	18.8	90.6	.583	22.41
1867-73....	5,224,068	92,795,200	2,412,677	87,853,203	17.7	94.7	.758	29.15
1874-80....	4,480,286	77,948,855	2,026,670	50,657,259	17.4	64.9	.623	23.98
1881-87....	6,155,494	74,629,507	1,940,366	48,742,370	12.1	.....	.653	25.12
1888-94....	5,945,458	84,545,022	2,198,170	49,606,990	14.2	.....	.587	22.57
1862-94....	26,823,551	424,291,860	11,031,588	322,346,397	15.8	75.9	.641	24.69
1867-94....	21,805,306	329,918,584	8,577,883	236,859,822	15.1	71.8	.658	25.33
1867-78....	8,241,652	142,986,520	3,717,651	121,971,783	17.3	85.2	.716	27.55
1879-86....	6,707,690	91,543,042	2,380,118	59,158,729	13.6	.....	.646	24.86
1887-94....	6,855,964	95,389,022	2,480,114	55,729,310	13.9	.....	.584	22.47
1867-78....	8,241,652	142,986,520	3,717,651	121,971,783	17.3	85.2	.716	27.55
1879-82....	3,138,629	48,263,088	1,254,840	32,783,246	15.4	.....	.679	26.15
1883-94....	10,425,025	138,668,976	3,605,392	82,104,793	13.3	.....	.592	22.77
1867-80....	9,704,354	170,744,055	4,439,347	138,510,462	17.6	81.1	.697	26.79
1881-94....	12,100,952	159,174,529	4,138,536	98,349,360	13.2	.....	.618	23.76
1876-78....	1,989,464	32,092,620	834,408	20,474,428	16.1	63.8	.621	23.91
1893-95....	2,368,123	40,141,910	1,043,690	21,051,013	17.0	.....	.524	20.17

TABLE VIII. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per bushel and ton of the buckwheat raised in the ten Mississippi Valley states, in the Exterior States, including all excepting the ten Mississippi Valley states, and in the nation, together with the weight in tons and its value in dollars gold of the per capita product of buckwheat in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER BUSHEL IN CENTS.			GOLD VALUES PER TON IN DOLLAR.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862....	48	54	53	32.4	40.5	38.9	12.46	15.56	14.99	.....	.....
1863....	83	68	70	55.9	50.8	51.5	21.49	19.56	19.83	.....	.....
1864....	79	73	74	52.5	54.8	54.4	20.21	21.08	20.94	.....	.....
1865....	95	96	96	63.5	72.0	70.3	24.44	27.70	27.06	.....	.....
1866....	111	94	99	77.4	71.1	72.2	29.79	27.34	28.13	.....	.....
1867....	118	105	108	79.1	79.3	79.3	30.43	30.53	30.51	.0154	.468
1868....	105	104	105	70.3	78.6	77.2	27.03	30.24	29.71	.0140	.415
1869....	107	100	101	71.4	75.4	74.8	27.46	29.00	28.76	.0120	.345
1870....	81	100	96	59.0	75.0	70.9	22.70	28.87	27.27	.0067	.181
1871....	104	103	103	69.4	77.6	76.1	26.69	29.88	29.28	.0055	.160
1872....	100	100	100	66.9	75.3	73.6	25.75	28.98	28.31	.0052	.147
1873....	118	95	99	78.7	71.9	73.0	30.29	27.65	28.10	.0049	.137
1874....	105	96	98	70.3	72.2	71.8	27.05	27.77	27.64	.0049	.135
1875....	101	82	86	67.7	61.7	63.0	26.03	23.73	24.24	.0059	.144
1876....	100	91	93	67.2	68.6	68.3	25.86	26.40	26.28	.0056	.146
1877....	89	92	92	59.9	69.2	67.7	23.06	26.62	26.05	.0057	.148
1878....	78	69	72	52.5	51.8	52.7	20.19	19.91	20.27	.0067	.136
1879....	103	77	81	69.1	57.9	59.8	26.59	22.28	23.00	.0070	.161
1880....	102	177	81	68.3	57.6	59.4	26.28	22.17	22.85	.0076	.173
1881....	136	114	118	91.2	85.5	86.5	35.10	32.90	33.27	.0048	.160
1882....	107	197	99	71.9	73.1	73.0	27.67	28.13	28.08	.0055	.153
1883....	125	109	112	83.4	82.0	82.2	32.10	31.54	31.62	.0037	.117
1884....	88	78	80	59.1	58.9	58.9	22.73	22.65	22.66	.0052	.119
1885....	97	72	76	64.7	54.5	55.9	24.88	20.97	21.50	.0058	.125
1886....	87	72	74	58.1	53.9	54.5	22.36	20.74	20.95	.0054	.113
1887....	96	73	77	64.3	55.3	56.5	24.74	21.30	21.71	.0048	.104
1888....	93	85	86	62.3	63.4	63.3	23.99	24.40	24.35	.0052	.127
1889....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893....	83	79	79	55.9	59.1	58.3	21.49	22.75	22.43	.0047	.106
1894....	91	73	75	60.8	54.7	55.6	23.39	21.02	21.37	.0048	.103
1895....	72	59	61	48.1	44.6	45.2	18.53	17.16	17.39	.0057	.099
1862-66....	86	78	79	57.3	58.5	58.3	22.03	22.49	22.41	.....	.....
1867-70....	106	103	104	70.7	77.5	76.3	27.19	29.83	29.37	.0119	.350
1871-74....	106	99	100	70.9	74.3	73.6	27.80	28.58	28.23	.0051	.144
1875-78....	93	83	85	62.1	62.4	62.4	23.88	24.02	23.99	.0060	.143
1879-82....	111	89	92	74.0	66.7	67.9	28.46	25.67	26.13	.0062	.161
1883-86....	97	80	83	65.0	60.3	60.9	24.99	23.20	23.45	.0051	.118
1887-90....	94	79	82	63.2	60.6	60.0	24.33	22.93	23.10	.0049	.113
1891-94....	86	75	77	57.8	56.7	56.9	22.21	21.81	21.87	.0049	.107
1862-66....	86	78	79	57.3	58.5	58.3	22.03	22.49	22.41	.....	.....
1867-73....	106	102	103	70.8	76.9	75.8	27.24	29.58	29.15	.0089	.259
1874-80....	97	83	85	65.0	62.5	62.3	25.01	24.05	23.98	.0062	.149
1881-87....	105	86	89	70.1	64.5	65.3	26.96	24.82	25.12	.0050	.126
1888-94....	88	78	80	59.3	58.5	58.7	22.82	22.52	22.57	.0049	.110
1862-94....	96	85	87	64.2	61.2	64.1	24.69	24.68	24.69	.....	.....
1867-94....	97	87	89	66.2	65.8	65.8	25.48	25.30	25.33	.0060	.152
1867-78....	102	96	97	68.1	72.4	71.6	26.18	27.85	27.55	.0075	.206
1879-86....	105	84	88	70.2	63.6	64.6	26.99	24.48	24.86	.0056	.138
1887-94....	89	77	79	59.7	58.2	58.4	22.98	22.37	22.47	.0049	.110
1867-78....	102	96	97	68.1	72.4	71.6	26.18	27.85	27.55	.0075	.206
1879-82....	111	89	92	74.0	66.7	67.9	28.46	25.67	26.15	.0062	.161
1883-94....	91	78	80	61.1	58.8	59.2	23.52	22.63	22.77	.0049	.112
1867-80....	102	93	81	68.1	70.4	69.7	26.22	27.06	26.79	.0074	.199
1881-94....	95	82	84	63.8	61.4	61.8	24.55	23.62	23.76	.0050	.118
1876-78....	89	83	84	59.9	62.6	62.1	23.07	24.11	23.91	.0060	.143
1893-95....	81	69	71	54.5	52.0	52.4	20.97	19.98	20.17	.0051	.102



## CHAPTER IX.

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### CORN, OATS, WHEAT, BARLEY, BUCKWHEAT, AND RYE IN COMBINATION.

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#### AVERAGE PRICES IN THE MISSISSIPPI VALLEY.

For these six leading cereals of American agriculture there was in the center of their production in the Mississippi Valley an upward movement in average prices from 1862 to 1867, thereafter a decline to 1872. This decline from 1867 to 1872 was later followed by an advance in average price until 1894. This latter year had an average price above the general average for the thirty-three years ending with the year named. In the intervening period between 1872 and 1894 there had been some years with an exceptionally high average, notably 1874, 1881, 1882, and 1890. The highest of these was in 1881, when the simple average value of these six crops was \$24.69 a ton. This average had been previously exceeded but once, and that by only a very small amount and in the year 1867. That year witnessed for these ten Mississippi Valley states a simple average value of \$25.60, or four per cent above that of 1881. The period from 1872 to 1894 with the four years named of exceptionally high price included, the following years with exceptionally low prices, 1878 of \$12.04, 1885 of \$12.30, and 1893 of \$12.78 a ton.

The year 1894 had an average gold farm value of \$15.99 a ton, or seventeen per cent above that of 1872, the year preceding the controverted silver legislation. The average for the period 1888 to 1894 was six per cent and that from 1891 to 1894 was nine per cent above that for the year 1872. These facts show that prices in the Mississippi Valley for these six staples of the farm have been remarkably stable for over thirty years, and taking the whole period together show an upward and not a downward trend of prices.



## AVERAGE PRICES IN THE SEABOARD STATES

have for these six crops followed a different line. In the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, whose detailed statistics are given in Table (d) and in the Exterior States (embracing all states not included in the ten Mississippi Valley states), whose statistics are given in Table (i), the average farm price rose from 1860 to 1867 and then fell with more or less regularity until 1889. In this year the average farm value for these six cereals was in the Exterior States \$18.46 a ton in gold. This average had not been as low in any year since 1862, when it was \$18.39. In these states the average farm price did not fall as low as in 1889 or 1862 in any year subsequent to 1869 until after 1894. The average for 1893 was \$18.52, or six cents a ton more than in 1889. The causes producing in these seaboard states of the Union, included in the tables for the seven states and the Exterior States, the price decline from 1867 to 1894 practically ceased to operate in 1889, when the minimum of price before 1895 was reached. This fact of the minimum average price in these seaboard states in 1889 may be stated in another way. It may be said that the forces in the United States active to raise average prices, for the time being at least, became in 1889 more powerful than those which from 1867 to 1889 had been effective in lessening farm values in the seaboard states.

## HIGH AVERAGE PRICES, 1879-1882.

While there was in the seaboard states a downward tendency in farm prices from 1867 to 1889, as well as in the central states of the Mississippi Valley, all enjoyed the benefit of the high prices that prevailed in the years 1879 to 1882. The average gold farm value for the United States was for these six crops \$18.35 a ton for the thirty-three years 1862 to 1894. For the year 1881 it was \$27.50, or fifty per cent greater. For the ten Mississippi Valley states the average for thirty-three years was \$15.53 a ton, while for 1881 it was \$24.69, or nearly sixty per cent greater. The four year-period, 1879 to 1882, was for the ten states \$3.45 a ton, or over twenty per cent greater than the average for thirty-three years. In the nation this same four-year period was \$2.95, or over fifteen per cent greater than the average for 1862 to 1894. The difference between the average farm value of these six crops in 1881, and the four-year period, 1879 to 1882, over the ordinary year or short period of time was, of course, nearly twice as great as the sum mentioned above. The causes for the exceptionally high average prices of all agricultural staples in 1881 and for the years 1879 to

1882 have been explained at length in the chapters devoted to corn and wheat. The additional amount realized by the farmers of the United States during the four years, 1879 to 1882, by reason of the enhanced price of that period, made up a total of not less than \$1,000,000,000 upon these six crops. This is a sum of \$300,000,000 per annum, or not far from seven dollars per capita for all the people in the land.

## THE HIGH PRICES OF 1867

are the only ones to be compared with those of 1881, but they were lower than those of this year of high farm value, fourteen years later. The decline to be noted in the seven states and in the Exterior States from 1862 to 1873 was one that takes its measure from the years of extremely high price, 1866 and 1867. The average for those years was for these six cereals about twice as great as in 1862, and the gold home value of that special year, 1862, was lower than for any year after 1860 and before 1895. But the high price of the one period as of the other were greatly affected by the changed demand for American food stuffs in Europe. The relative increase in that demand was in 1879 to 1882 much greater than in the four years, 1867 to 1870. This can be seen most clearly by a study of the figures showing the per capita product of these cereals for the several years and periods.

## WEIGHT AND VALUE OF THE PER CAPITA PRODUCT.

TABLE A.

A comparative exhibit of the average yield per acre, the simple average gold home value per ton, and the weight in tons and value in gold of the annual per capita product of corn, oats, wheat, rye, barley, and buckwheat crop of the United States as they are reported by the Department of Agriculture, and as the latter figures would be when corrected to allow for variations in the average yield per acre:

YEARS.	Average Yield Per Acre.	Gold Average Value Per Ton, In Gold.	PER CAPITA PRODUCT.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	.580	\$21.66	1.028	\$22.18	.916	\$20.92
1874-80.....	.584	18.27	1.220	22.31	1.142	20.92
1881-87.....	.519	18.34	1.264	23.18	1.334	24.45
1888-94.....	.522	16.56	1.183	19.60	1.230	20.54

The average price for the years given in the table above fell from \$21.66 to \$16.56 a ton. This table does not exhibit the low prices that existed before 1867, and which are shown in other tables. Owing to the disturbance of the Civil War no full agricultural returns are given before 1867, and hence it is impossible to calculate the per capita product before that year. The greater share of the decline shown above, from 1867, took place, as has already been mentioned, from 1867 to 1873, and not after the latter mentioned date. The decreased average farm value of these six staples was, on the whole, very closely associated with an increase in the annual per capita weight of the combined crop raised for market in the United States. This is quite fully shown in Table A, already given above. The average annual yield per acre for these six crops from the year 1868 to 1894 was .547 tons. Correcting the reported per capita product by adding to or subtracting therefrom that percentage of the reported figures which the reported average yield per acre for any given period is above or less than the average for the twenty-eight years, we have the results shown in the last two columns. It is to be noted, first that the per capita product of these cereals increased in twenty-eight years from .916 to 1.230 tons, or thirty-four per cent. This increase in per capita product so closely complements the decrease in average per ton that for three of the four seven-year periods the annual value of the per capita was practically unchanged, being \$20.92, \$20.92, and \$20.54 for the three periods. These figures show, that, with the general demand for exportation unchanged, the prices of agricultural staples tend to such levels as to make the annual per capita product remain always the same. In the case of these cereals only one seven-year period shows a departure from that uniformity. That departure was in the period 1881 to 1887. It was caused by the special demand in Europe for American food products in the years mentioned. Those years saw the annual value of the per capita product increased over \$3.50. This amounts for the seven years to an increase that came to the farmers of the United States upon these six grains as the result of the special foreign imports of American food products of over \$1,400,000,000. It should be noted that the sum added to the farmer's income as the result of the special foreign demand for American farm products was largely included in the four-year period 1879 to 1882. This makes this shorter period exhibit a greater elevation of prices and value of the per capita product than does the longer period.

## EFFECT OF CHANGING RAILWAY RATES UPON FARM PRICES.

A glance at the figures for Iowa in Table (a) discloses for thirty-three years, with the exception of this four-year period, a wonderful stability of prices. Those two periods, 1867 to 1870 and 1879 to 1882, show the effect upon farm prices in the central American states of special and extraordinary foreign demand for American food stuffs. The other periods disclose the stability of prices whenever they are undisturbed by changing railway rates and other local causes for varying farm prices. The figures for those states show a slight and yet decided tendency to upward price when these two special four-year periods are taken out of consideration. This can be seen by the following exhibit of Iowa prices and the price for the Mississippi Valley states for all the four-year periods excepting the two of exceptionally high prices.

TABLE B.

A comparative exhibit for certain periods of years of the average gold farm prices per ton of the six leading cereals in Iowa and the ten Mississippi Valley states.

YEARS.	AVERAGE PRICE.	
	In Iowa.	In Ten States.
1862-66.....	\$12.25	\$15.33
1871-74.....	12.78	16.29
1875-78.....	10.47	13.95
1883-86.....	11.67	14.06
1887-90.....	11.83	14.99
1891-94.....	12.68	14.97

The values for Iowa in the foregoing are simple averages, while those for the ten states are averages corrected by the method previously explained in this report. The prices in Iowa show a decided upward trend, especially from the period of low prices that substantially began in 1872. The average in Iowa in 1891 to 1894 was twenty-eight per cent above that of 1872, and the corresponding average for the ten states was eight per cent above that of the year that preceded the legislation of 1873. In Tables (c), (f), and (h) are given the relative values and index numbers showing the average price movement in the three great groups of ten, seven, and seventeen states after the elimination of the effect of changing railway rates and other local causes of price changes. In the ten states, when comparing the earlier and later four-year periods, there was an advance in the index numbers of twelve points, in the seven states of seven points, and in the seventeen of ten points.



In other words, the decline in the average farm prices of these six cereals to be noted in the seaboard states and the nation is wholly due to the effect of changed railway freight rates and other causes producing local change in prices. In this last category is to be included the effect of introducing new methods of milling into the work of making fine flour from wheat.

#### DIFFERENT INDEX NUMBERS.

In Tables (c), (f), and (h) of this and most other chapters are given five sets of index numbers showing for various years and periods the relative average price movement of agricultural staples in the United States. To one familiar with statistics dealing with averages, all these will prove valuable. To others they may be misleading. There is in general a close agreement between the index numbers for the corrected average values of this report and those calculated according to the relative importance of the several crops in the states included in any given group. These two sets of index numbers throw more light upon the average of price movement than the others. Attention is called to the discrepancies between these two sets for the ten states found in Table (c) and the explanation for the same.

TABLE C.

A comparative exhibit of the index numbers for corn, oats, wheat, rye, barley, and buckwheat in the ten Mississippi Valley states, calculated by two different methods.

YEARS.	INDEX NUMBERS.	
	To Average Values Corrected by Method of this Report.	According to the Relative Importance of the Several Crops in the Individual States.
1862-66.....	111	102
1867-70.....	136	129
1871-74.....	118	114
1875-78.....	101	100
1879-82.....	134	128
1883-86.....	102	102
1887-90.....	109	110
1891-94.....	108	105

There is a great similarity for most periods in this table. The most marked exceptions are found in the first two periods, 1862 to 1866 and 1867 to 1870. The difference shown is due mainly to the two methods of including the data for Kansas and Nebraska in the

general average of price movement. In the given periods the prices in the two states mentioned were in most years very high. The states did not of most crops raise enough to supply local demands. Corn, oats, wheat, and hay had to be shipped into these states from Iowa and Missouri. Prices in Kansas and Nebraska were the prices in Iowa and Missouri plus the cost of shipping west from those states to the place of consumption. The amount of cereals raised in Kansas and Nebraska in these earlier years was relatively small, less than one-twentieth of what it is to-day. In the calculation for the first set of index numbers there is included an amount which is the same for all periods in the average for the state in thirty-three years. This multiplies the importance of Kansas and Nebraska crops with the high price in 1862 to 1870 and makes it ten times as great as it was, or as it is given credit for in the calculation for the second set of index numbers in Table (c). For this reason the second set of index numbers can be said to better represent the average price movement in these ten states for cereals from 1862 to 1894. That set indicates a general upward trend of prices for the whole period, with two periods of exceptionally high price, to which attention has previously been called.

#### INDEX NUMBERS FOR THE SEVEN STATES.

There is the same variations and the same general agreement in the two series of index numbers for the seven states shown in Table (f) as for the ten states in Table (c). In the government reports no return from Georgia, Virginia, and Texas were given before 1866, and none in Kentucky before 1864, and the only figures for California were in 1862. The only figures for most of these five states were for the high price year 1866. By the method for calculating corrected averages in this report, the same weight is given to the simple high-priced year of 1866, in Virginia, Georgia, or Texas, as for the four low and one high-priced year 1862 to 1866. This unduly increases the index numbers for the group for the years 1862 to 1866, and raises it much above the corresponding numbers calculated according to relative importance in the several states. The same remark will apply to the seventeen states, including those of the groups of ten and seven. Those states raise over eighty per cent of the cereals of the United States, and their average price movement is substantially that of the nation. The last set of index numbers for Table (h) confirms for the nation the deduction, made in another way from other tables, that the general price level for the cereals was in 1891 to 1894 practically

the same for the United States as in the year 1862 to 1866, and the average of all the intervening years with the exception of the two periods of high price, 1867 to 1870 and 1879 to 1882.

#### THE EFFECTS OF THE PANIC OF 1893.

None of the groups by four or seven-year periods nor the graphic plate for these six cereals disclose the effect of the panic of 1893 upon prices. That panic, with the causes producing it and the consequences following it, brought down prices so that the average in 1895 in the ten states was only seventy-four per cent of what they had been for the four or seven years ending with 1894. There was substantially the same decline in the groups of seven and seventeen states. The causes and consequences of the panic of 1893 were in 1895 heightened in their effects by excessively great crops in the United States and lessened foreign markets abroad, That decline now resting as a burden upon the American farmers as the result of the factors producing the panic of 1893 costs the farmers of the United States, on the depressed prices of cereals alone, in 1895, fifteen cents on every bushel raised, or a total of \$275,000,000. It is a great loss. It is a loss whose producing cause does not lie back of 1893, since there is before that date no indication of any corresponding price decline.

NOTE.—In all calculations from 1889 to 1892 there are included estimates for rye, barley, and buckwheat made as has been explained at the close of the chapters dealing with those grains.

TABLE IX. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the combined product in bushels and tons of the corn, oats, wheat, rye, buckwheat, and barley raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total farm or home value of the same in currency, and its average home or farm value per bushel and ton in dollars, gold and currency, and index numbers calculated by three different methods.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Preced'g Column	Av'rage for Six Crops.	According to Relative Importance
					Currency	Gold.			
1862-66.	595,231,263	15,897,473	444,477,501	.473	27.96	17.73	110	97	98
1867-70.	483,548,000	12,457,770	364,872,200	.584	29.29	22.68	141	130	129
1871-74.	548,520,000	14,380,504	303,999,960	.500	21.14	19.07	119	114	113
1875-78.	630,553,900	16,521,763	300,987,624	.457	18.22	17.44	109	104	102
1879-82.	670,143,755	17,943,043	425,072,135	.634	.....	23.69	147	122	117
1883-86.	623,378,485	16,227,001	284,168,762	.456	.....	17.51	109	98	92
1887-90.	579,009,000	15,018,394	278,505,899	.481	.....	18.54	115	95	94
1891-94.	604,875,665	15,927,891	284,034,264	.469	.....	17.83	111	90	83
1862-66.	595,231,263	15,897,473	444,477,501	.473	27.96	17.73	110	97	98
1867-73.	483,560,000	23,261,260	580,278,830	.535	24.95	20.68	129	122	121
1874-80.	1,132,349,295	29,956,886	594,816,802	.503	19.86	19.00	118	107	110
1881-87.	1,066,353,845	27,971,613	576,825,639	.541	.....	20.62	128	110	104
1888-94.	1,042,755,665	27,286,607	489,719,573	.470	.....	17.95	112	92	87
1862-94.	4,735,260,068	124,373,839	2,686,118,345	.507	21.60	19.29	120	106	102
1876-78.	492,912,900	12,921,755	230,371,024	.456	17.82	17.39	108	94	100
1879-82.	442,582,268	11,566,960	173,962,024	.393	.....	15.04	94	81	71
1862....	117,293,002	3,206,210	67,228,858	.395	20.97	14.45	90	73	70
1872....	147,427,000	3,827,050	69,350,470	.417	18.12	16.07	100	100	100
1895....	158,236,386	4,114,533	52,099,934	.329	.....	12.66	79	71	67



TABLE IX. (a).—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Prec'd'g Column	Av'rage for Six Crops.	According to Relative Importance
					Cur'ncy	Gold.			
1862....	191,050,144	5,193,559	62,911,131	.227	12.11	8.35	77	.....	.....
1863....	136,450,298	3,641,910	97,461,708	.459	26.76	17.20	159	.....	.....
1864....	198,276,299	5,322,053	173,038,998	.404	32.51	15.05	139	.....	.....
1865....	232,630,173	6,222,308	87,353,421	.268	14.03	10.02	93	.....	.....
1866....	216,427,359	5,751,720	133,559,548	.451	23.22	17.25	160	.....	.....
1867....	171,132,000	4,457,320	147,507,390	.622	33.09	23.89	221	.....	.....
1868....	197,221,000	5,185,260	106,853,970	.399	20.60	15.19	140	.....	.....
1869....	188,602,000	4,905,042	106,413,380	.465	21.69	17.88	165	.....	.....
1870....	271,668,000	7,189,570	111,155,960	.369	15.46	13.96	129	.....	.....
1871....	271,516,000	7,182,316	108,035,880	.365	15.04	13.79	128	.....	.....
1872....	289,904,000	7,640,660	93,192,870	.285	12.19	10.81	100	.....	.....
1873....	211,859,000	5,555,266	90,582,720	.383	16.30	14.63	135	.....	.....
1874....	199,749,000	5,262,848	118,585,640	.528	22.53	20.03	185	.....	.....
1875....	387,980,000	10,006,080	144,903,000	.331	14.47	12.82	119	.....	.....
1876....	290,395,000	7,844,790	106,147,350	.334	13.53	12.73	118	.....	.....
1877....	357,980,000	9,367,648	126,447,280	.348	13.50	13.30	123	.....	.....
1878....	318,442,090	8,296,041	92,467,995	.291	.....	11.15	103	.....	.....
1879....	409,561,130	10,982,865	160,621,280	.392	.....	14.62	135	.....	.....
1880....	368,777,288	9,687,366	165,944,414	.450	.....	17.13	158	.....	.....
1881....	273,326,000	6,910,332	166,968,610	.611	.....	24.16	223	.....	.....
1882....	341,419,660	8,470,577	166,802,890	.489	.....	19.69	182	.....	.....
1883....	334,806,684	8,181,793	132,980,572	.397	.....	16.25	150	.....	.....
1884....	381,097,000	9,553,404	121,680,550	.319	.....	12.74	118	.....	.....
1885....	391,146,000	9,673,446	111,739,628	.286	.....	11.56	107	.....	.....
1886....	344,708,000	8,458,896	112,807,150	.327	.....	13.34	123	.....	.....
1887....	289,877,060	6,880,892	114,594,140	.395	.....	16.65	154	.....	.....
1888....	454,061,000	11,128,318	146,257,741	.322	.....	13.14	121	.....	.....
1889....	446,560,500	10,832,006	118,601,978	.266	.....	10.95	101	.....	.....
1890....	280,485,500	7,036,716	127,621,737	.455	.....	18.14	168	.....	.....
1891....	383,742,384	9,478,819	148,967,517	.389	.....	15.72	145	.....	.....
1892....	271,502,386	6,755,173	103,497,967	.381	.....	15.32	142	.....	.....
1893....	262,454,387	6,370,605	81,369,058	.310	.....	12.77	118	.....	.....
1894....	314,414,507	7,558,897	113,888,449	.359	.....	15.07	139	.....	.....
1895....	350,054,886	8,953,567	79,644,264	.227	.....	8.90	82	.....	.....
1862-66.	974,834,264	26,131,550	554,324,806	.357	21.21	13.31	123	104	103
1867-70.	828,623,000	21,737,192	471,950,700	.451	21.71	17.17	159	139	137
1871-74.	973,028,000	25,641,090	419,397,110	.379	16.90	14.37	133	125	123
1875-78.	1,363,797,090	35,514,559	499,855,625	.326	13.23	12.54	116	113	115
1879-82.	1,393,084,078	36,051,140	690,337,194	.474	.....	18.32	169	145	146
1883-86.	1,451,737,684	35,867,539	479,267,900	.330	.....	13.36	124	114	127
1887-90.	1,470,984,000	35,877,932	507,075,596	.345	.....	14.13	131	118	122
1891-94.	1,232,113,664	30,163,494	447,722,901	.363	.....	14.84	137	112	129
1862-66.	974,834,264	26,131,550	554,324,806	.356	21.21	13.31	123	104	103
1867-73.	1,601,982,000	42,115,434	763,742,170	.397	18.13	15.11	140	127	126
1874-80.	2,341,884,508	61,447,638	915,016,959	.375	14.89	14.28	132	125	123
1881-87.	2,356,380,344	58,129,340	927,633,540	.394	.....	15.96	148	129	140
1888-94.	2,413,220,664	59,160,534	840,204,447	.348	.....	14.88	138	115	124
1862-94.	9,688,221,780	246,984,496	4,000,921,922	.375	16.20	14.69	136	124	126
1876-78.	975,817,090	25,508,479	325,062,625	.....	12.74	12.42	115	111	113
1893-95.	926,923,780	22,883,069	274,901,771	.....	.....	12.01	111	99	136
1862....	191,050,144	5,193,559	62,911,131	.227	12.11	8.35	77	71	68
1872....	289,904,000	7,640,660	93,192,870	.285	12.19	10.81	100	100	100
1895....	350,054,886	8,953,567	79,644,264	.227	.....	8.90	82	83	82

TABLE IX. (a).—Continued.

## MICHIGAN.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Freed'g Column	Av'rage for Six Crops.	According to Relative Import'nce.
					Currency	Gold.			
1862-66.	184,819,151	4,930,621	200,932,308	.743	40.75	27.87	107	97	100
1867-70.	173,435,000	4,556,090	170,091,940	.779	37.33	29.67	113	120	110
1871-74.	162,351,000	4,223,537	129,049,390	.714	30.55	27.46	105	108	100
1875-78.	239,425,209	6,209,717	156,928,355	.625	25.27	24.09	92	100	92
1879-82.	308,499,412	8,059,730	215,452,673	.698	.....	26.73	102	113	98
1883-86.	305,828,299	7,802,902	163,659,666	.535	.....	20.97	89	91	76
1887-90.	298,150,000	7,251,948	157,664,294	.529	.....	21.74	83	95	84
1891-94.	312,684,413	7,646,481	154,009,083	.493	.....	20.14	77	85	79
1862-66.	184,819,151	4,930,621	200,932,308	.743	40.75	27.87	107	97	100
1867-73.	296,333,000	7,743,916	267,001,610	.752	34.48	28.79	119	113	107
1874-80.	439,777,292	11,513,158	297,841,022	.652	25.87	24.90	96	101	92
1881-87.	518,215,619	13,176,309	303,724,942	.586	.....	23.05	88	101	84
1888-94.	546,047,413	13,317,022	278,287,827	.510	.....	20.90	89	88	81
1862-94.	1,985,192,475	50,681,026	1,347,787,709	.614	26.59	24.05	92	98	90
1876-78.	203,410,696	4,955,817	83,528,432	.410	16.85	16.25	62	96	69
1893-95.	214,225,584	5,237,975	88,540,569	.413	.....	16.90	65	77	69
1862....	37,387,403	1,008,173	23,987,199	.442	23.79	16.40	63	63	60
1872....	41,878,000	1,072,414	31,550,790	.677	29.43	26.10	100	100	100
1895....	75,479,149	1,858,431	26,652,658	.353	.....	14.29	55	66	64

## WISCONSIN.

1862-66.	232,421,829	5,776,269	186,507,913	.509	32.29	20.47	97	99	89
1867-70.	227,108,000	5,602,852	173,220,146	.597	30.92	23.71	112	121	108
1871-74.	237,438,000	6,007,168	151,121,130	.570	25.16	22.55	107	115	105
1875-78.	329,041,600	7,977,434	156,614,060	.459	19.63	18.68	88	99	93
1879-82.	376,483,864	9,040,301	209,212,975	.556	.....	23.14	109	124	121
1883-86.	394,783,494	8,986,690	159,814,578	.403	.....	17.78	84	98	92
1887-90.	391,960,000	8,924,682	163,709,629	.418	.....	18.34	87	106	99
1891-94.	413,074,734	8,998,427	154,705,011	.374	.....	17.19	81	94	94
1862-66.	232,421,829	5,776,269	186,507,913	.509	32.29	20.47	97	99	89
1867-73.	413,666,000	10,325,882	290,350,856	.585	28.12	23.43	111	116	106
1874-80.	571,846,494	13,884,101	289,485,900	.487	20.85	20.05	95	107	101
1881-87.	661,559,464	15,289,668	303,408,663	.459	.....	19.84	94	110	103
1888-94.	722,817,734	16,037,903	285,152,020	.395	.....	17.78	84	98	97
1862-94.	2,602,311,521	61,313,823	1,354,905,442	.472	22.10	20.01	95	105	100
1876-78.	258,226,600	6,272,764	113,543,810	.392	18.10	16.23	77	94	83
1893-95.	321,742,333	6,909,052	102,860,006	.320	.....	14.89	70	84	83
1862....	46,180,049	1,171,529	25,946,741	.391	21.15	15.27	72	74	65
1872....	63,211,000	1,608,908	38,567,560	.541	23.97	21.16	100	100	100
1895....	129,711,240	2,595,621	31,250,203	.259	.....	12.08	57	68	69

TABLE IX. (a).—Continued.

## MISSOURI.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton, Gold.		For Prec'd'g C'umn.	Av'rage for Six Crops.	According to Relative Import'nce.
1862-66.	297,474,814	8,183,396	167,831,941	.358	20.51	13.00	104	95	104
1867-70.	334,657,000	9,164,900	199,202,030	.470	21.74	17.17	137	125	134
1871-74.	419,472,000	11,118,744	194,987,400	.417	17.54	15.72	126	105	108
1875-78.	570,670,800	15,223,304	193,310,312	.323	12.70	12.08	97	92	83
1879-82.	766,556,252	20,546,915	354,438,820	.462	.....	17.25	138	117	114
1883-86.	907,882,089	24,146,115	294,332,990	.325	.....	12.19	97	91	89
1887-90.	961,022,000	25,446,478	338,215,250	.352	.....	13.29	106	93	98
1891-94.	826,480,354	22,045,643	308,786,296	.374	.....	14.01	112	90	99
1862-66.	297,474,814	8,183,396	167,831,941	.358	20.51	13.00	104	95	104
1867-73.	678,671,000	18,300,832	340,511,360	.420	18.61	15.56	124	94	117
1874-80.	1,047,212,692	28,059,608	405,974,292	.373	14.47	13.91	111	101	92
1881-87.	1,482,606,449	39,275,788	569,853,060	.384	.....	14.51	116	101	102
1888-94.	1,578,250,354	42,055,871	566,934,395	.359	.....	13.48	108	95	99
1862-94.	5,084,215,309	135,875,495	2,051,105,048	.377	15.10	14.12	113	100	101
1876-78.	409,900,800	10,947,344	140,463,312	.334	12.83	12.52	100	87	100
1893-95.	655,348,968	17,443,372	188,836,992	.288	.....	10.83	87	79	80
1862....	93,566,266	2,574,380	27,505,726	.203	10.68	7.36	59	63	59
1872....	130,986,000	3,479,708	49,066,740	.332	14.10	12.51	100	100	100
1895....	287,408,784	7,717,760	62,667,341	.218	.....	8.12	65	70	65

## IOWA.

1862....	67,870,211	1,834,049	18,542,709	.188	10.11	7.00	.....	74	.....
1863....	55,826,959	1,492,612	27,176,742	.213	18.21	11.71	.....	124	.....
1864....	78,204,719	2,100,380	60,448,309	.359	28.78	13.33	.....	141	.....
1865....	89,682,782	2,391,585	36,380,365	.290	15.21	10.87	.....	115	.....
1866....	81,672,700	2,163,992	51,178,050	.465	23.14	17.54	.....	186	.....
1867....	87,872,000	2,292,888	54,832,600	.506	23.91	19.39	.....	206	.....
1868....	103,191,000	2,737,734	60,275,300	.402	22.02	15.16	.....	160	.....
1869....	122,843,000	3,253,592	50,063,670	.445	15.39	16.79	.....	178	.....
1870....	132,145,000	3,539,562	60,678,600	.310	17.14	11.59	.....	123	.....
1871....	140,148,000	3,712,992	45,976,480	.222	12.38	11.09	.....	118	.....
1872....	146,892,000	3,908,828	41,599,230	.254	10.64	9.44	.....	100	.....
1873....	166,032,000	4,446,366	69,265,010	.374	15.58	13.98	.....	148	.....
1874....	174,595,000	4,701,562	83,288,710	.450	17.72	17.03	.....	180	.....
1875....	224,910,000	5,995,560	74,715,700	.295	12.46	11.04	.....	117	.....
1876....	187,640,000	5,010,640	56,257,200	.282	11.23	10.42	.....	110	.....
1877....	241,110,000	6,301,500	81,414,700	.333	12.92	12.73	.....	135	.....
1878....	249,672,960	6,571,133	50,137,700	.201	.....	7.63	.....	81	.....
1879....	260,031,520	6,881,931	85,425,292	.329	.....	12.41	.....	131	.....
1880....	348,798,668	9,217,626	109,389,137	.314	.....	11.87	.....	126	.....
1881....	238,878,000	6,201,546	112,735,030	.471	.....	18.18	.....	193	.....
1882....	259,960,800	6,679,507	103,392,064	.398	.....	15.48	.....	164	.....
1883....	271,788,094	6,825,437	99,996,116	.368	.....	14.65	.....	155	.....
1884....	369,115,000	9,433,736	97,356,910	.264	.....	10.32	.....	109	.....
1885....	354,642,000	9,073,112	93,987,005	.265	.....	10.36	.....	110	.....
1886....	316,735,000	7,971,395	97,210,586	.307	.....	12.20	.....	129	.....
1887....	290,731,000	7,283,524	101,147,780	.348	.....	13.89	.....	147	.....
1888....	375,655,000	9,744,310	104,087,385	.277	.....	10.68	.....	113	.....
1889....	476,521,500	12,173,452	98,665,247	.207	.....	8.10	.....	86	.....
1890....	328,950,500	8,374,244	140,678,659	.428	.....	16.79	.....	178	.....
1891....	492,217,157	12,567,145	158,538,398	.322	.....	12.62	.....	134	.....
1892....	314,495,159	7,631,105	97,603,443	.310	.....	12.79	.....	136	.....
1893....	367,142,621	9,101,056	97,769,288	.266	.....	10.74	.....	114	.....
1894....	197,877,382	4,372,055	73,014,922	.369	.....	16.75	.....	177	.....
1895....	509,364,604	12,943,170	89,026,663	.175	.....	7.39	.....	78	.....



TABLE IX. (a)—Continued.

IOWA—Continued.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Prec'd'g C'lumn.	Average for Six Crops.	According to Relative Importance
1862-66.	373,257,371	9,982,618	193,726,175	.328	19.41	12.25	130	123	124
1867-70.	446,051,000	11,823,776	225,850,170	.408	19.09	15.36	163	159	152
1871-74.	628,667,000	16,769,748	240,129,430	.309	14.29	12.78	135	133	128
1875-78.	903,332,960	23,878,833	263,525,300	.276	11.04	10.47	112	109	116
1879-82.	1,107,668,988	28,980,610	410,941,523	.371	.....	14.18	150	154	169
1883-86.	1,312,280,094	33,303,680	388,550,617	.296	.....	11.67	124	122	137
1887-90.	1,471,858,000	37,575,530	444,579,071	.302	.....	11.83	125	132	154
1888-94.	1,371,732,319	33,671,361	426,926,171	.311	.....	12.68	134	130	169
1862-66.	373,257,371	9,982,618	193,726,175	.328	19.41	12.25	130	123	124
1867-70.	899,123,000	23,891,962	382,630,890	.356	16.01	13.47	143	141	135
1874-80.	1,736,753,148	44,679,952	541,608,439	.310	12.12	11.74	124	126	130
1881-87.	2,101,849,894	53,468,257	705,845,491	.336	.....	13.20	140	136	156
1888-94.	2,552,859,319	63,963,367	770,357,462	.302	.....	12.04	128	142	161
1862-94.	7,614,847,732	195,986,156	2,594,228,457	.321	13.23	12.47	132	133	146
1876-78.	678,422,960	17,883,273	188,809,600	.270	10.55	10.25	109	109	114
1893-95.	1,074,608,505	25,522,102	259,922,882	.242	.....	10.11	107	107	136
1862....	67,870,211	1,834,050	18,642,709	.188	10.11	11.71	124	76	74
1872....	146,892,000	3,908,828	41,599,230	.251	10.64	9.44	100	100	100
1895....	509,588,502	12,048,993	89,138,612	.175	7.39	7.39	78	82	98

## MINNESOTA.

1862-66.	40,662,076	1,031,350	25,850,804	.403	25.07	15.89	78	100	96
1867-70.	122,453,000	3,120,520	87,154,640	.560	27.93	21.97	108	137	112
1871-74.	161,648,000	4,180,262	99,133,060	.613	23.71	21.20	105	119	106
1875-78.	218,360,846	5,575,204	120,846,007	.525	21.68	20.58	102	109	105
1879-82.	320,069,131	8,072,655	197,508,857	.617	.....	24.47	121	125	128
1883-86.	409,137,767	9,882,491	174,487,417	.426	.....	17.66	87	116	95
1887-90.	437,186,000	10,304,928	199,977,223	.457	.....	19.41	96	109	107
1891-94.	488,604,315	11,591,797	206,849,689	.423	.....	17.84	88	99	98
1862-66.	40,662,076	1,031,350	25,850,804	.403	25.07	15.89	78	100	96
1867-73.	242,936,000	6,243,012	161,692,000	.556	25.90	21.64	107	127	109
1874-80.	407,488,629	10,438,796	233,082,252	.552	22.31	21.56	106	112	110
1881-87.	683,783,115	16,578,044	325,892,819	.477	.....	19.66	97	108	106
1888-94.	823,251,315	19,470,005	364,689,822	.443	.....	18.74	92	102	103
1862-94.	2,198,121,135	53,759,207	1,111,807,697	.485	20.68	19.85	98	108	106
1876-78.	169,501,846	4,313,330	89,234,267	.514	20.69	20.19	100	107	105
1893-95.	426,539,014	10,014,348	137,626,752	.325	.....	13.74	68	81	77
1862....	10,191,573	255,314	4,197,663	.283	16.44	11.27	56	66	68
1872....	41,747,000	1,097,800	25,080,350	.533	22.85	20.27	100	100	100
1895....	198,738,301	4,689,590	51,711,136	.260	.....	11.03	54	62	61



TABLE IX. (a)—Continued.

## NEBRASKA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Prec'd'g C'olumn.	Av'rage for Six Crops.	According to Relative Import'nce.
					Cur'ncy	Gold.			
1862-66.	7,552,886	200,367	5,588,431	.451	27.89	17.00	165	190	229
1867-70.	25,143,300	669,071	12,777,169	.402	19.10	15.09	147	162	165
1871-74.	45,514,000	1,205,629	19,251,631	.375	15.97	14.15	138	148	126
1875-78.	196,793,050	5,320,271	47,719,363	.229	8.97	8.46	82	97	97
1879-82.	359,990,847	9,831,100	136,757,334	.350	.....	13.91	135	147	152
1883-86.	660,249,963	17,541,266	166,261,757	.252	.....	9.48	92	106	106
1887-90.	627,681,000	16,401,280	184,583,051	.294	.....	11.25	109	127	136
1891-94.	690,556,609	17,805,284	202,357,643	.293	.....	11.37	110	127	147
1862-66.	7,552,886	200,367	5,588,431	.451	27.89	17.00	165	190	229
1867-73.	61,207,300	1,627,600	26,001,420	.362	15.98	13.61	132	150	137
1874-80.	370,159,957	10,060,334	106,778,899	.279	10.61	10.25	100	116	114
1881-87.	995,424,908	26,490,640	293,519,345	.295	.....	11.08	108	118	124
1888-94.	1,179,136,609	30,595,318	343,408,284	.291	.....	11.22	109	127	142
1862-94.	2,613,481,660	68,974,268	775,296,379	.293	11.24	11.10	108	122	130
1876-78.	160,508,050	4,341,661	38,722,363	.217	8.92	8.01	78	92	90
1893-95.	579,697,893	14,817,342	166,518,140	.287	.....	11.24	109	107	196
1862....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1872....	12,140,800	323,815	3,757,455	.190	.....	7.45	72	71	93
1895....	182,432,312	4,653,053	34,676,502	.274	11.60	10.29	160	100	100

## KANSAS.

1862-66.	35,290,449	981,383	21,040,547	.378	21.44	14.61	150	91	163
1867-70.	69,901,600	1,904,066	42,673,483	.485	22.41	17.81	183	128	152
1871-74.	165,705,000	4,343,643	71,927,990	.391	16.56	14.90	153	121	122
1875-78.	477,974,800	12,895,051	143,646,484	.285	11.14	10.55	108	79	78
1879-82.	557,765,997	15,284,848	242,587,564	.435	.....	15.87	163	116	117
1883-86.	838,380,710	22,347,925	237,314,662	.283	.....	10.62	109	84	90
1887-90.	773,573,000	20,001,244	240,896,582	.311	.....	12.04	124	93	99
1891-94.	794,265,539	20,971,595	296,207,495	.373	.....	14.13	145	101	84
1862-66.	35,290,449	981,383	21,040,547	.378	21.44	14.61	150	91	163
1867-73.	201,264,600	5,363,368	87,084,563	.359	16.24	13.47	138	108	124
1874-80.	771,068,897	20,850,127	264,319,127	.332	12.68	12.26	126	93	89
1881-87.	1,263,178,610	33,616,267	432,018,573	.342	.....	12.85	132	96	105
1888-94.	1,442,054,339	37,919,010	491,921,997	.341	.....	12.97	133	96	87
1862-94.	3,712,856,895	98,730,155	1,296,384,807	.341	13.13	12.81	132	96	95
1876-78.	376,625,200	10,150,902	111,336,684	.289	10.97	10.71	110	79	84
1893-95.	555,951,333	14,807,569	180,635,071	.325	.....	12.29	125	93	92
1862....	7,167,549	199,825	2,388,599	.230	11.95	8.24	85	75	100
1872....	38,006,000	997,478	11,072,110	.258	11.11	9.74	100	100	100
1895....	258,777,744	6,929,606	77,217,963	.297	.....	11.14	114	80	103

TABLE IX. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of corn, oats, wheat, rye, barley, and buckwheat grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of said crops in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value per Ton, in Dollars.	Average Value Per Bushel, in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Cur'ey	Gold.
1862.	24,469,916	690,040,825	18,762,532	279,651,231	192,679,698	10.27	40.5	27.9
1863.	25,815,859	517,946,960	13,912,565	372,261,075	239,363,871	17.25	71.9	46.2
1864.	26,336,275	615,308,757	16,540,092	617,689,783	285,990,370	17.29	100.4	46.4
1865.	26,910,058	772,786,035	20,645,516	393,463,334	280,932,820	13.61	51.1	36.3
1866.	28,985,150	736,078,749	19,533,414	512,340,482	380,668,978	19.49	69.6	51.7
1867.	30,685,274	668,754,000	17,484,950	620,088,560	447,667,840	25.60	92.7	66.9
1868.	30,223,857	756,208,500	19,960,350	494,728,473	364,614,885	18.27	65.4	48.2
1869.	34,273,431	810,799,000	21,226,314	490,964,116	404,554,432	19.06	60.6	49.9
1870.	35,961,468	959,647,400	25,511,561	463,754,799	418,770,583	16.41	48.3	43.6
1871.	33,478,256	946,335,600	24,974,724	440,086,114	403,558,967	16.16	46.5	42.6
1872.	35,830,309	1,030,682,800	27,166,067	417,527,855	370,347,207	13.63	40.5	35.9
1873.	41,695,587	937,919,600	24,677,176	463,610,312	415,858,450	16.85	49.4	44.3
1874.	45,638,169	869,264,000	23,036,818	534,406,970	475,087,796	20.62	61.5	54.6
1875.	50,767,651	1,353,684,000	35,447,054	559,827,590	496,007,245	13.99	41.4	36.6
1876.	54,161,166	1,222,458,800	32,317,842	488,275,368	459,467,121	14.15	40.0	37.6
1877.	53,313,811	1,423,438,846	37,340,576	576,442,159	567,795,527	15.21	40.5	39.9
1878.	58,374,750	1,518,774,320	39,931,680	480,680,515	.....	12.04	51.6	31.6
1879.	59,925,300	1,671,187,270	44,642,634	726,185,791	.....	16.27	.....	43.5
1880.	71,394,060	1,768,119,148	46,984,683	798,193,121	.....	16.99	.....	45.1
1881.	73,038,800	1,341,608,000	34,848,628	860,441,170	.....	24.69	.....	64.1
1882.	71,301,109	1,738,681,180	45,356,697	858,668,417	.....	18.93	.....	49.4
1883.	73,272,261	1,735,400,973	44,285,249	718,627,970	.....	16.23	.....	41.4
1884.	76,316,532	2,022,612,000	52,310,372	644,863,890	.....	12.33	.....	31.9
1885.	74,975,529	2,011,415,000	51,410,034	632,182,975	.....	12.30	.....	31.4
1886.	78,847,186	1,819,588,000	46,316,744	633,862,710	.....	13.69	.....	34.8
1887.	77,499,723	1,583,510,000	39,424,552	634,334,850	.....	16.09	.....	40.1
1888.	80,799,119	2,122,665,000	53,971,938	737,362,837	.....	13.66	.....	34.7
1889.	83,111,189	2,367,614,500	60,179,646	646,763,432	.....	10.75	.....	27.3
1890.	76,262,655	1,571,368,500	40,016,800	777,481,290	.....	19.43	.....	49.5
1891.	82,912,334	2,316,949,164	59,346,399	940,601,050	.....	15.85	.....	40.6
1892.	80,975,932	1,893,319,164	47,947,310	709,590,915	.....	14.80	.....	37.5
1893.	79,858,610	1,788,351,008	45,007,285	575,379,412	.....	12.78	.....	32.3
1894.	70,012,567	1,444,501,333	35,149,415	559,254,803	.....	15.91	.....	38.7
1895.	86,242,771	2,309,875,016	58,006,950	550,092,595	.....	9.48	.....	23.8
62-66	132,517,258	3,332,161,326	89,394,119	2,175,405,905	1,379,635,737	15.43	65.3	41.4
67-70	131,144,030	3,195,408,900	84,183,175	2,069,485,948	1,635,607,740	19.43	64.8	51.1
71-74	156,642,321	3,784,202,000	99,854,785	1,855,631,251	1,664,852,420	16.77	49.0	43.9
75-78	216,617,378	5,518,355,966	145,037,152	2,105,225,632	2,003,950,408	13.81	38.1	36.3
79-82	275,659,269	6,519,595,598	171,832,642	3,243,488,499	.....	18.88	.....	49.7
83-86	303,411,508	7,589,015,973	194,322,399	2,629,537,545	.....	13.53	.....	34.6
87-90	317,672,686	7,645,158,000	193,592,936	2,795,942,409	.....	14.44	.....	36.6
91-94	313,759,443	7,438,120,669	187,450,409	2,784,826,180	.....	14.86	.....	37.4
62-66	132,517,258	3,332,161,326	89,394,119	2,175,405,905	1,379,635,737	15.43	65.3	41.4
67-73	242,148,182	6,110,346,900	161,001,142	3,390,710,229	2,825,372,364	17.54	55.5	46.2
74-80	393,574,907	9,826,926,384	259,701,287	4,164,011,514	4,003,417,116	15.41	42.4	42.8
81-87	525,251,140	12,252,815,153	313,952,276	4,982,981,982	.....	15.87	.....	40.7
88-94	553,932,406	13,499,768,669	341,618,793	4,946,433,739	.....	14.48	.....	36.6
62-94	1,847,423,893	45,022,018,432	1,165,667,617	19,659,543,369	18,137,840,938	15.56	43.7	40.3
67-94	1,714,906,635	41,689,857,106	1,076,273,498	17,484,137,644	16,758,205,201	15.57	41.9	40.2
67-78	504,403,729	12,497,966,866	329,075,112	6,030,342,831	5,304,410,568	16.11	48.2	42.4
79-86	579,070,777	14,108,611,571	366,155,041	5,873,026,044	.....	16.14	.....	41.6
87-94	631,432,129	15,083,278,669	381,043,345	5,580,768,589	.....	14.65	.....	37.0
67-78	504,403,729	12,497,966,866	329,075,112	6,030,342,831	5,304,410,568	16.11	48.2	42.4
79-82	275,659,269	6,519,595,598	171,832,642	3,243,488,499	.....	18.88	.....	49.7
83-94	934,843,637	22,672,294,642	575,365,744	8,210,306,134	.....	14.27	.....	36.2
67-80	635,723,089	15,937,273,284	420,702,429	7,554,721,743	6,828,789,480	16.23	47.5	42.9
81-94	1,079,183,546	25,752,583,822	655,571,069	9,929,415,721	.....	15.15	.....	38.6
76-78	165,849,727	4,164,671,966	109,590,098	1,545,398,042	1,507,943,163	13.76	37.1	36.2
93-95	236,113,948	5,537,727,357	138,163,650	1,684,726,810	.....	12.19	.....	30.4

TABLE IX. (c).

An exhibit for various years and periods of years of the different average gold farm or home values and the different index numbers for the combined crops of corn, oats, wheat, rye, barley, and buckwheat raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY —				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report (2).		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column —			Average of Index Numbers for Ten States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
1862-66....	15.43	15.33	.....	13.64	113	111	126	113	102
1867-70....	19.43	18.82	.....	16.15	142	136	148	155	129
1871-74....	16.77	16.29	.....	13.89	127	118	127	120	114
1875-78....	13.81	13.95	.....	12.18	101	101	112	99	100
1879-82....	18.88	18.53	.....	17.27	139	134	158	130	128
1883-86....	13.53	14.06	.....	13.06	99	102	110	100	102
1887-90....	14.44	14.99	.....	14.53	106	109	133	108	110
1891-94....	14.86	14.97	.....	14.97	109	108	138	102	105
1862-66....	15.43	15.33	.....	13.64	113	111	126	113	102
1867-73....	17.54	17.05	.....	14.49	129	124	133	124	120
1874-80....	15.41	15.30	.....	13.51	113	111	125	110	108
1881-87....	15.87	16.13	.....	15.07	117	116	139	129	112
1888-94....	14.48	14.83	.....	14.71	106	107	135	106	106
1862-94....	15.56	15.56	.....	14.41	114	113	132	110	110
1876-78....	13.76	13.44	.....	11.80	101	97	109	98	102
1893-95....	12.19	11.94	.....	11.47	89	86	105	89	91
1862.....	10.27	11.33	.....	10.53	75	82	97	70	65
1872.....	13.63	13.80	.....	10.89	100	100	100	100	100
1895.....	9.48	10.43	.....	9.83	70	76	90	74	79

(a) Computed by Sauerbeck's method.



TABLE IX. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the combined product in bushels and tons of the corn, oats, wheat, rye, buckwheat, and barley raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total farm or home value of the same in currency and its average home or farm value per bushel and ton in dollars, gold and currency, and index numbers calculated by three different methods.

## NEW YORK.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Pre- ceding Column	Aver'ge for Six Crops.	According to Relative Importance
					Cur- rency	Gold.			
1862...	97,308,174	2,191,562	64,886,866	.459	29.61	20.40	74		
1863...	96,710,544	2,176,023	88,403,940	.588	40.62	26.12	94		
1864...	83,866,383	1,915,200	119,018,687	.657	62.14	28.77	104		
1865...	101,750,654	2,261,640	90,415,716	.634	39.98	28.55	102		
1866...	105,641,408	2,303,930	110,053,243	.774	47.77	35.40	128		
1867...	81,270,000	1,897,462	96,554,770	.858	53.46	38.57	139		
1868...	68,978,000	1,621,246	79,010,670	.844	48.73	35.92	130		
1869...	74,438,000	1,701,584	64,782,340	.717	38.08	31.37	113		
1870...	70,486,000	1,602,788	57,541,880	.737	35.90	32.42	117		
1871...	72,060,000	1,611,572	55,235,490	.704	34.34	31.48	114		
1872...	68,430,000	1,522,126	47,573,500	.617	31.25	27.72	100		
1873...	62,963,000	1,417,084	45,831,610	.653	32.34	29.01	105		
1874...	67,484,000	1,512,564	56,028,100	.738	37.04	32.92	119		
1875...	75,450,000	1,646,300	49,048,500	.576	29.85	26.34	95		
1876...	83,285,000	1,839,680	54,379,200	.614	29.56	27.81	100		
1877...	97,200,000	2,138,000	55,860,000	.566	26.13	25.73	93		
1878...	98,285,600	2,208,893	48,308,128	.469	21.88	21.88	79		
1879...	87,500,300	1,957,261	54,188,845	.631	.....	27.68	100		
1880...	97,503,666	2,231,994	60,819,417	.624	.....	26.81	97		
1881...	83,659,000	1,865,896	61,821,450	.739	.....	33.14	120		
1882...	88,665,340	1,983,494	59,627,775	.673	.....	30.06	109		
1883...	81,332,968	1,749,219	48,995,709	.602	.....	27.44	99		
1884...	91,404,000	2,050,704	48,125,360	.522	.....	23.46	85		
1885...	86,434,000	1,938,040	46,619,112	.539	.....	24.05	87		
1886...	88,887,000	1,988,412	44,726,510	.503	.....	22.44	81		
1887...	80,151,000	1,830,814	42,255,470	.527	.....	23.08	83		
1888...	87,405,000	1,940,418	48,222,695	.552	.....	24.85	90		
1889...									
1890...									
1891...									
1892...									
1893...	65,339,307	1,450,492	30,576,298	.469	.....	21.08	76		
1894...	63,142,356	1,389,518	31,113,258	.488	.....	22.46	81		
1895...	86,765,312	1,863,178	35,000,739	.403	.....	18.78	68		
1862-66.	485,277,163	10,848,355	472,778,452	.624	43.60	27.94	100	96	97
1867-70.	295,172,000	6,733,080	297,889,660	.790	44.22	34.65	125	122	122
1871-74.	270,937,000	6,063,346	204,768,700	.679	33.77	30.32	109	106	106
1875-78.	354,220,600	7,832,873	207,595,828	.559	26.50	25.27	91	90	89
1879-82.	357,327,706	8,038,645	236,457,487	.661	.....	29.42	106	102	102
1883-86.	348,057,968	7,726,375	188,466,691	.599	.....	23.09	83	85	85
1887-90.	311,323,000	7,040,186	170,440,313	.579	.....	24.21	87	85	85
1891-94.	293,335,858	6,469,122	150,364,938	.513	.....	23.24	84	80	82
1862-66.	485,277,163	10,848,355	472,778,452	.624	43.60	27.94	100	96	97
1867-73.	498,625,000	11,283,862	446,630,260	.737	30.72	32.55	117	102	115
1874-80.	606,707,966	13,534,692	378,632,190	.598	28.17	26.80	97	96	94
1881-87.	600,533,308	13,406,579	352,171,386	.568	.....	26.27	95	82	91
1888-94.	524,507,858	11,678,494	278,558,781	.531	.....	23.85	36	83	84
1862-94.	2,715,651,295	60,751,982	1,928,771,069	.613	31.75	27.38	99	96	96
1876-78.	278,770,600	5,989,893	158,547,328	.554	26.47	25.78	93	90	84
1893-95.	215,246,985	4,702,188	96,690,295	.450	.....	20.56	74	74	90
1862....	97,308,174	2,191,562	64,886,866	.459	29.61	20.40	74	64	71
1872....	68,430,000	1,522,126	47,573,500	.617	31.25	27.72	100	100	100
1895....	86,765,312	1,863,178	35,000,739	.403	.....	18.78	68	71	67



TABLE IX. (d).—Continued.

## PENNSYLVANIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Pre- ceding Column	Average for Six Crops.	According to Relative Importance.
					Currency	Gold.			
1862-66.	508,538,125	11,793,115	472,466,681	.589	40.06	25.40	100	94	94
1867-70.	442,981,000	10,102,710	404,449,200	.723	40.04	31.71	124	115	115
1871-74.	362,004,000	8,799,640	274,543,370	.682	31.20	28.08	110	104	103
1875-78.	417,338,320	10,054,592	248,056,308	.568	24.67	23.51	92	99	86
1879-82.	436,519,192	10,654,253	294,136,942	.674	.....	27.61	108	99	99
1883-86.	416,893,724	10,039,587	228,893,867	.549	.....	22.80	109	84	83
1887-90.	392,442,060	9,574,976	212,327,562	.541	.....	22.18	87	82	82
1891-94.	389,139,589	9,574,478	209,495,730	.538	.....	21.88	86	76	78
1862-66.	508,538,125	11,793,115	472,466,681	.589	40.06	25.40	100	94	94
1867-73.	721,172,000	16,835,470	611,416,220	.704	36.32	30.18	128	111	110
1874-80.	731,934,912	17,833,054	459,919,429	.602	25.79	24.71	97	92	89
1881-87.	722,420,324	17,388,453	428,313,738	.593	.....	24.63	96	91	90
1888-94.	681,790,649	16,743,259	372,253,592	.546	.....	22.23	87	79	80
1862-94.	3,365,856,010	80,593,351	2,344,369,660	.609	29.09	25.42	100	94	93
1876-78.	320,698,320	7,716,992	184,837,108	.563	23.95	23.38	91	88	84
1893-95.	292,702,023	7,163,551	134,779,660	.460	.....	18.81	74	68	67
1862....	94,776,729	2,258,330	58,449,423	.425	25.88	17.84	70	64	63
1872....	92,786,000	2,236,558	64,359,100	.615	28.78	25.53	100	100	100
1895....	110,010,147	2,672,578	44,586,359	.405	.....	16.68	65	60	59

## KENTUCKY.

1862-66.	191,418,901	5,197,440	126,310,828	.478	24.30	17.62	113	116	127
1867-70.	262,867,600	7,114,248	159,803,508	.480	22.46	17.75	114	112	122
1871-74.	282,088,400	7,659,127	149,575,436	.476	19.53	17.53	112	108	112
1875-78.	291,498,460	7,867,992	122,567,692	.400	15.58	14.83	95	95	94
1879-82.	352,501,147	9,646,707	191,230,638	.542	.....	19.82	127	109	123
1883-86.	408,561,225	11,088,653	172,101,383	.422	.....	15.52	100	100	100
1887-90.	355,007,000	9,650,752	162,308,048	.457	.....	16.82	108	92	105
1891-94.	378,582,566	10,183,011	167,443,312	.442	.....	16.44	105	87	100
1862-66.	191,418,901	5,197,440	126,310,828	.478	24.30	17.62	113	116	127
1867-73.	482,270,000	13,053,654	270,512,884	.467	20.72	17.25	111	107	116
1874-80.	537,558,897	14,615,054	242,559,952	.434	16.60	15.95	102	101	102
1881-87.	656,594,935	17,832,488	324,625,931	.494	.....	18.20	117	94	113
1888-94.	654,682,566	17,709,294	287,331,250	.439	.....	16.23	104	90	100
1862-94.	2,522,525,299	68,407,930	1,251,340,845	.461	18.29	16.98	109	100	109
1876-78.	211,639,500	5,695,061	82,799,844	.378	14.54	14.05	90	85	88
1893-95.	297,475,298	7,952,963	113,382,574	.381	.....	14.26	91	79	89
1862....	79,704,500	2,105,259	38,087,450	.424	17.59	15.60	100	100	100
1872....	116,693,014	3,126,977	34,605,005	.297	.....	11.06	71	75	94

TABLE IX. (d).—Continued.

## VIRGINIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars. Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Pre- ceding Column	Aver'ge for Six Crops.	According to Relative Importance.
					Currency	Gold.			
1862-66.	39,807,567	1,000,007	35,623,378	.665	35.62	26.47	102	110	114
1867-70.	135,890,000	3,522,398	125,395,200	.730	25.60	28.18	109	113	107
1871-74.	121,815,500	3,225,512	92,017,565	.678	28.53	25.62	99	104	109
1875-78.	141,973,790	3,688,129	84,705,456	.569	22.97	21.92	85	89	83
1879-82.	184,977,864	4,986,652	116,890,499	.632	.....	23.44	90	112	96
1883-86.	177,312,133	4,652,184	97,821,154	.552	.....	21.03	81	99	90
1887-90.	203,336,000	5,316,716	104,721,594	.515	.....	19.70	76	93	87
1891-94.	187,693,413	5,006,275	96,699,259	.515	.....	10.32	39	85	80
1862-66.	39,807,567	1,000,007	35,623,378	.665	35.62	26.47	102	110	114
1867-73.	227,858,200	5,955,991	195,689,680	.715	32.86	27.34	105	109	105
1874-80.	267,406,269	7,051,048	160,973,129	.578	22.83	21.91	85	100	86
1881-87.	320,866,818	8,460,419	185,992,585	.580	.....	21.98	85	104	90
1888-94.	336,867,413	8,930,408	175,595,333	.521	.....	19.66	76	90	83
1862-94.	1,192,806,267	31,397,873	753,874,105	.591	24.01	22.46	87	100	92
1876-78.	107,845,190	2,785,229	61,924,634	.574	22.23	22.24	86	79	83
1893-95.	141,629,507	3,746,766	63,360,421	.447	.....	16.91	65	71	70
1862....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1872....	29,186,600	780,930	22,805,330	.691	29.24	25.94	100	100	100
1895....	47,782,419	1,253,321	19,014,958	.398	.....	15.17	58	66	65

## GEORGIA.

1862-66.	18,034,883	495,650	28,418,813	1.171	57.34	42.61	138	117	157
1867-70.	128,700,100	3,562,892	135,173,950	.834	37.94	30.11	97	109	113
1871-74.	115,113,500	3,090,780	107,798,026	.843	34.88	31.41	102	109	111
1875-78.	125,425,280	3,269,693	93,589,874	.706	28.62	27.09	88	115	91
1879-82.	138,677,416	3,599,733	108,054,826	.779	.....	30.02	97	101	100
1883-86.	154,740,083	4,052,973	101,538,560	.656	.....	25.05	81	89	88
1887-90.	160,540,000	4,193,412	100,724,748	.627	.....	24.02	78	77	85
1891-94.	176,129,722	4,600,307	106,520,026	.605	.....	23.16	75	74	83
1862-66.	18,034,883	495,650	28,418,813	1.171	57.34	42.61	138	117	157
1867-73.	212,027,800	5,813,203	212,244,290	.831	36.51	30.29	98	108	111
1874-80.	219,560,886	5,714,031	171,298,549	.747	29.98	28.69	93	99	96
1881-87.	272,857,693	7,139,397	189,434,857	.621	.....	26.53	86	93	92
1888-94.	294,879,722	7,703,159	180,422,314	.612	.....	23.42	76	75	84
1862-94.	1,017,360,984	26,865,440	781,818,823	.718	29.10	27.21	88	95	96
1876-78.	97,970,280	2,544,112	67,770,074	.675	26.64	26.00	84	85	87
1893-95.	137,839,747	3,603,043	71,465,699	.....	.....	19.84	64	67	72
1862....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1872....	28,813,100	791,196	27,505,735	.850	34.77	30.84	100	100	100
1895....	50,182,235	1,327,617	21,454,258	.427	.....	16.16	52	59	60

TABLE IX. (d).--Continued.

## TEXAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.		
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		For Pre- ceding Column	Aver'ge for Six Crops.	According to Relative Importance
					Cur'ney	Gold.			
1862-66.	23,412,123	645,978	22,882,133	.727	35.42	26.34	165	90	148
1867-70.	97,404,000	2,680,788	81,824,890	.664	30.52	24.11	151	109	150
1871-74.	109,338,000	3,027,108	86,044,580	.705	28.42	25.46	160	114	159
1875-78.	221,059,500	6,046,488	124,670,670	.536	20.62	19.61	123	84	101
1879-82.	236,482,914	6,297,432	167,759,400	.709	.....	26.64	167	100	105
1883-86.	344,702,485	9,145,282	194,983,093	.566	.....	21.32	134	82	115
1887-90.	390,171,000	10,345,128	190,835,857	.489	.....	18.45	116	71	101
1891-94.	364,432,927	9,458,935	187,438,418	.514	.....	19.82	124	72	100
1862-66.	23,412,123	645,978	22,882,133	.727	35.42	26.34	165	90	148
1867-73.	176,031,000	4,858,708	144,829,870	.684	29.80	24.76	156	110	155
1874-80.	365,306,994	9,956,235	227,111,674	.598	22.81	21.93	138	89	122
1881-87.	561,941,903	14,886,515	333,319,419	.591	.....	22.33	140	86	120
1888-94.	660,310,927	17,299,703	330,295,945	.500	.....	19.09	120	71	100
1862-94.	1,787,002,949	47,647,139	1,056,439,041	.570	22.17	21.37	134	84	116
1876-78.	185,627,500	5,069,292	94,312,470	.496	18.60	18.16	114	80	98
1893-95.	301,276,402	7,870,516	130,835,026	.434	.....	16.62	104	65	89
1862.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	30,199,000	838,726	15,043,420	.442	17.95	15.92	100	100	100
1895.....	124,556,383	3,316,912	38,612,593	.310	.....	11.64	71	56	71

## CALIFORNIA.

1862-66.	15,664,969	422,434	17,041,203	1.088	.....	40.34	109	135	119
1867-70.	94,560,600	2,571,520	89,202,032	.943	.....	34.69	94	105	103
1871-74.	142,164,991	3,921,710	151,571,780	1.066	.....	38.65	104	109	115
1875-78.	180,540,250	4,988,437	182,064,400	1.009	.....	36.50	98	104	109
1879-82.	206,245,260	5,738,050	187,100,650	.907	.....	32.61	88	90	97
1883-86.	223,535,647	6,224,478	162,845,532	.729	.....	26.16	71	74	78
1887-90.	222,861,000	6,152,616	151,210,989	.678	.....	24.58	66	76	73
1891-94.	218,761,693	6,084,966	133,510,680	.610	.....	21.94	59	68	65
1862-66.	15,664,969	422,434	17,041,203	1.088	.....	40.34	109	135	119
1867-73.	193,275,591	5,292,306	200,791,752	1.039	.....	37.94	103	107	113
1874-80.	334,558,079	9,227,862	323,779,576	.968	.....	35.09	95	100	104
1881-87.	373,121,078	10,402,794	283,575,557	.760	.....	27.26	74	77	81
1888-94.	387,714,693	10,758,815	249,359,179	.643	.....	23.18	63	71	69
1862-94.	1,304,334,410	36,104,211	1,074,547,267	.824	.....	29.76	80	85	89
1876-78.	143,980,250	3,973,647	142,506,400	.990	.....	35.82	97	96	107
1893-95.	165,113,627	4,581,201	85,707,762	.519	.....	18.71	51	59	56
1862.....	15,664,969	422,335	17,041,207	1.088	.....	40.35	109	110	119
1872.....	26,634,800	1,021,338	37,794,848	.914	.....	37.02	100	100	100
1895.....	63,516,106	1,762,228	33,784,391	.532	.....	19.17	52	57	57

TABLE IX. (e).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of corn, oats, wheat, rye, barley, and buckwheat grown in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total product of said crops in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency, together with the index numbers for those average values.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel Gold.	Per Ton.		
					Currency	Gold.	
1862-66.....	1,282,153,801	30,402,980	1,175,521,488	.605	28.67	25.52	104
1867-70.....	1,457,575,300	36,288,636	1,293,738,440	.714	35.65	28.66	117
1871-74.....	1,403,461,391	35,787,223	1,066,319,457	.694	29.80	27.20	111
1875-78.....	1,732,056,200	43,748,204	1,063,250,223	.589	24.30	23.35	96
1879-82.....	1,912,731,499	48,961,479	1,301,630,442	.681	.....	26.63	109
1883-86.....	2,073,803,265	52,929,535	1,143,650,281	.553	.....	21.66	89
1887-90.....	2,035,630,060	52,273,786	1,092,578,111	.537	.....	20.91	85
1891-94.....	2,008,075,768	51,377,093	1,051,472,363	.524	.....	20.47	84
1862-66.....	1,282,153,801	30,402,980	1,175,521,488	.605	28.67	25.52	104
1867-73.....	2,511,259,591	63,094,194	2,081,114,956	.701	32.58	27.90	114
1874-80.....	3,063,034,003	77,931,977	1,964,274,499	.619	25.21	24.34	100
1881-87.....	3,508,336,061	89,516,644	2,096,433,473	.598	.....	23.42	96
1888-94.....	3,540,753,828	90,823,132	1,873,816,394	.543	.....	20.63	84
1862-94.....	13,905,537,284	351,768,927	9,191,160,810	.604	26.13	23.85	98
1867-94.....	12,623,383,483	321,365,947	8,015,639,322	.604	24.94	23.74	97
1867-78.....	4,593,092,891	115,824,063	3,423,308,125	.661	29.64	26.21	107
1879-86.....	3,986,534,764	101,891,005	2,448,280,723	.614	.....	24.03	98
1887-94.....	4,043,755,828	103,650,879	2,144,050,474	.530	.....	20.69	85
1867-78.....	4,593,092,891	115,824,063	3,423,308,125	.661	29.64	26.21	107
1879-82.....	1,912,731,499	48,961,479	1,301,630,442	.681	.....	26.63	109
1883-94.....	6,117,559,093	156,580,411	3,290,700,755	.538	.....	21.02	86
1867-80.....	5,574,293,594	141,026,171	4,045,389,455	.656	28.69	23.94	98
1881-94.....	7,049,089,880	180,339,776	3,970,249,867	.560	.....	22.02	90
1876-78.....	1,349,960,600	33,874,917	794,778,856	.577	23.46	22.95	90
1893-95.....	1,553,665,337	39,685,367	697,734,396	.443	.....	17.58	70
1862.....	207,749,872	4,872,228	140,377,492	.491	28.81	20.94	86
1872.....	365,784,300	9,356,133	253,169,333	.675	27.06	24.46	100
1895.....	600,291,174	15,343,234	227,525,961	.379	.....	14.83	61



TABLE IX. (f).

An exhibit for various years and periods of years of the different average gold farm or home values and the different index numbers for the combined crops of corn, oats, wheat, rye, barley, and buckwheat raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report. (2)	Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seven States.	According to Relative Importance. (a)	
		Per Ton.		(1)	(2)	(3)			
1862-66....	\$25.52	\$26.46.....	\$19.36	104	109	115	108	102	
1867-70....	28.66	28.61.....	22.10	117	118	131	112	125	
1871-74....	27.20	27.28.....	19.96	111	113	118	107	118	
1875-78....	23.35	23.56.....	19.09	96	97	113	95	98	
1879-82....	26.63	26.17.....	22.79	109	108	135	102	106	
1883-86....	21.66	21.83.....	19.49	89	90	116	86	90	
1887-90....	20.91	21.26.....	20.29	85	88	120	82	87	
1891-94....	20.47	20.57.....	20.57	84	85	122	75	84	
1862-66....	25.52	26.46.....	19.36	104	109	115	108	102	
1867-73....	27.90	28.16.....	20.60	114	116	122	110	118	
1874-80....	24.34	23.88.....	19.47	100	99	116	98	97	
1881-87....	23.42	23.46.....	20.70	96	97	123	92	96	
1888-94....	20.63	20.82.....	20.46	84	86	121	80	85	
1862-94....	23.85	23.85.....	20.39	98	98	120	93	97	
1876-78....	22.95	21.56.....	17.28	90	89	102	86	92	
1893-95....	17.58	17.83.....	17.43	70	74	103	82	73	
1862.....	20.94	.....	.....	86	.....	.....	49	72	
1872.....	24.46	24.23.....	16.86	100	100	100	100	100	
1895.....	14.83	16.79.....	15.32	61	69	91	63	66	

(a) Computed by Sauerbeck's method.

TABLE IX. (g).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of corn, oats, wheat, rye, barley, and buckwheat grown in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia Georgia, Texas, and California, together with the total product of said crops in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency, with the index numbers for those average values.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency	Gold.	
1862-66.....	4,614,315,127	119,797,099	3,350,927,393	.467	27.88	18.00	110
1867-70.....	4,652,984,200	120,471,811	3,363,224,388	.575	27.92	22.21	135
1871-74.....	5,187,663,391	135,642,098	2,921,950,708	.509	21.54	19.45	119
1875-78.....	7,250,412,166	188,785,356	3,168,475,860	.417	16.73	16.03	98
1879-82.....	8,432,327,097	220,794,112	4,545,118,941	.537	.....	20.54	125
1883-86.....	9,662,819,238	247,251,934	3,776,187,826	.391	.....	15.27	93
1887-90.....	9,680,838,060	245,866,722	3,888,520,520	.401	.....	15.82	96
1891-94.....	9,446,196,437	238,827,502	3,836,298,543	.406	.....	16.06	98
1862-66.....	4,614,315,127	119,797,099	3,350,927,393	.467	27.88	18.00	110
1867-73.....	8,621,606,491	224,095,336	5,471,825,185	.532	24.42	20.46	125
1874-80.....	12,889,960,387	337,633,264	6,128,286,013	.458	18.15	17.48	107
1881-87.....	15,761,151,214	408,468,920	7,079,415,455	.449	.....	17.55	107
1888-94.....	17,040,522,497	432,441,925	6,820,250,133	.400	.....	15.77	96
1862-94.....	58,927,555,716	1,517,436,544	28,850,704,179	.450	19.01	17.49	107
1867-94.....	54,313,240,589	1,397,639,445	25,500,376,786	.451	18.24	17.45	106
1867-78.....	17,091,059,757	444,899,175	9,453,650,956	.488	21.25	18.74	114
1879-86.....	18,095,146,335	468,046,046	8,321,306,767	.460	.....	17.78	108
1887-94.....	19,127,034,597	484,694,224	7,724,825,063	.439	.....	15.94	97
1867-78.....	17,091,059,757	444,899,175	9,453,650,956	.488	21.25	18.74	114
1879-82.....	8,432,327,097	220,794,112	4,545,118,941	.537	.....	20.54	125
1883-94.....	28,789,583,835	731,956,158	11,501,012,889	.330	.....	15.71	96
1867-80.....	21,511,566,878	561,728,600	11,600,111,198	.487	20.65	18.67	114
1881-84.....	32,801,673,711	835,910,845	13,899,665,608	.424	.....	16.63	101
1876-78.....	5,514,632,566	143,465,015	2,340,176,898	.414	16.31	15.93	97
1893-95.....	7,091,392,694	177,849,017	2,382,461,207	.336	.....	13.40	82
1862.....	897,790,697	23,634,760	420,028,723	.328	17.77	12.47	76
1872.....	1,396,467,100	36,522,200	670,697,238	.429	18.39	16.40	100
1895.....	2,910,166,190	73,350,184	777,618,556	.267	.....	10.60	65

TABLE IX. (h).

An exhibit for various years and periods of years of the different average gold farm or home values and the different index numbers for the combined crops of corn, oats, wheat, rye, barley, and buckwheat raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California; the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seven-teen States.	According to Relative Importance. (a)
		Per Ton.			(1)	(2)	(3)		
1862-66....	\$18.00	\$18.06	.....	\$15.12	110	111	123	111	102
1867-70....	22.21	21.08	.....	17.53	135	130	143	125	124
1871-74....	19.45	18.83	.....	15.29	119	116	125	115	113
1875-78....	16.03	16.17	.....	15.78	98	100	112	97	99
1879-82....	20.54	20.30	.....	18.55	125	125	151	119	120
1883-86....	15.27	15.86	.....	14.50	93	98	118	94	98
1887-90....	15.82	16.45	.....	15.88	96	101	129	98	102
1891-94....	16.06	16.27	.....	16.27	98	100	133	91	98
1862-66....	18.00	18.06	.....	15.12	110	111	123	111	102
1867-73....	20.46	19.62	.....	15.90	125	121	129	118	118
1874-80....	17.48	17.28	.....	14.88	107	107	121	104	104
1881-87....	17.55	17.73	.....	16.28	107	109	133	114	108
1888-94....	15.77	16.21	.....	16.01	96	100	130	95	100
1862-94....	17.49	17.49	.....	15.81	107	108	129	103	106
1876-78....	15.93	15.32	.....	13.07	97	95	107	94	97
1893-95....	13.40	13.30	.....	12.85	82	82	105	98	86
1862.....	12.47	.....	.....	.....	76	.....	.....	63	68
1872.....	16.40	16.21	.....	12.27	100	100	100	100	100
1895.....	10.60	12.06	.....	11.26	65	74	92	70	74

(a) Computed by Sauerbeck's method.

TABLE IX. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of corn, oats, wheat, rye, barley, and buckwheat grown in the states of the American Union not included in the ten embraced in Tables (a) to (c), and referred to in these tables as the Exterior States, together with the total product of said crops in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		AVERAGE.		
		Bushels.	Tons.	Currency.	Gold.	Value per Bushel in Cents.		Value per Ton in Dollars, Gold.
						Cur.	Gold.	
1862...	9,124,465	282,760,492	6,726,188	171,850,052	123,704,500	60.7	43.7	18.39
1863...	12,332,658	283,776,068	6,784,601	256,558,133	164,966,880	90.4	58.1	24.31
1864...	13,725,316	301,118,506	7,249,115	414,627,565	191,972,562	137.6	63.7	26.48
1865...	14,274,489	354,683,150	8,435,412	291,517,775	208,143,692	82.2	58.7	24.67
1866...	32,696,292	606,948,119	15,066,926	606,563,894	450,676,973	99.9	74.2	29.91
1867...	34,951,170	690,975,400	16,682,354	663,998,740	479,407,090	100.5	72.5	28.73
1868...	36,492,069	694,580,500	17,918,974	615,772,110	463,028,776	88.7	66.5	25.84
1869...	35,184,331	680,813,100	17,449,640	610,920,072	508,508,756	89.7	74.7	29.14
1870...	33,292,548	639,380,200	17,480,788	533,668,219	484,339,763	79.7	72.3	27.70
1871...	31,583,695	582,440,500	15,100,005	471,759,327	435,400,836	81.0	74.7	28.83
1872...	32,449,888	633,648,800	16,550,595	457,066,604	409,688,896	72.1	64.6	24.75
1873...	32,416,550	600,973,291	15,586,402	455,606,961	412,808,678	75.8	68.6	26.48
1874...	34,413,120	584,916,200	15,265,761	481,123,600	432,156,888	82.2	73.8	28.31
1875...	36,095,527	678,551,300	17,620,198	470,449,509	421,327,877	69.3	62.1	23.91
1876...	39,759,453	740,963,300	19,213,102	446,733,476	423,086,726	60.3	57.1	22.02
1877...	39,836,475	755,495,800	19,363,135	459,128,919	452,817,535	60.8	59.9	23.38
1878...	42,581,510	783,490,630	20,215,284	433,295,405	433,295,405	55.3	55.3	21.43
1879...	42,335,650	766,295,030	19,951,836	518,931,928	.....	.....	67.7	26.01
1880...	49,532,226	950,074,353	24,897,313	563,304,573	.....	.....	59.3	22.63
1881...	50,349,270	724,421,570	18,585,371	610,516,030	.....	.....	84.3	32.85
1882...	55,267,420	900,713,316	25,157,858	611,024,976	.....	.....	63.6	24.29
1883...	57,361,297	938,918,115	23,106,346	562,137,967	.....	.....	62.9	24.33
1884...	59,976,234	970,268,000	25,245,218	539,447,630	.....	.....	55.6	21.37
1885...	60,900,551	1,004,024,000	25,924,882	510,963,784	.....	.....	50.9	19.71
1886...	63,012,470	1,022,991,000	26,438,846	528,299,200	.....	.....	51.6	19.98
1887...	64,321,592	1,076,947,000	27,816,550	569,954,520	.....	.....	52.9	20.49
1888...	65,481,881	1,087,077,000	28,032,118	582,892,561	.....	.....	53.6	20.79
1889...	66,870,904	1,083,701,500	28,155,856	519,873,811	.....	.....	47.9	18.46
1890...	64,296,492	937,833,500	24,491,642	588,220,024	.....	.....	62.7	24.02
1891...	64,780,481	1,198,055,602	31,149,225	690,115,606	.....	.....	57.6	22.16
1892...	61,257,523	1,016,805,602	26,348,321	512,413,656	.....	.....	50.4	19.45
1893...	60,154,781	979,688,950	25,180,098	466,409,746	.....	.....	47.6	18.52
1894...	60,380,305	991,419,345	25,700,916	483,752,145	.....	.....	48.8	18.78
1895...	63,712,392	1,262,434,261	32,679,620	467,242,141	.....	.....	37.1	14.30
1862-66	82,153,220	1,829,286,335	44,262,242	1,741,117,419	1,139,464,607	95.2	62.3	25.74
1867-70	159,970,118	2,705,749,290	69,531,756	2,424,359,141	1,935,294,385	89.6	71.5	27.83
1871-74	130,863,253	2,401,978,791	62,502,763	1,865,556,492	1,690,055,298	77.7	70.3	27.04
1875-78	158,272,965	2,938,491,030	76,411,719	1,809,607,309	1,730,527,543	61.2	58.5	22.64
1879-82	197,484,566	3,401,504,239	88,592,378	2,303,777,507	.....	.....	67.7	26.00
1883-86	241,250,552	3,891,201,115	100,715,292	2,140,848,581	.....	.....	55.1	21.26
1887-90	260,970,869	4,185,559,000	108,496,163	2,260,940,916	.....	.....	54.1	20.84
1891-94	248,573,090	4,185,969,497	108,438,569	2,152,691,153	.....	.....	51.4	19.85
1862-66	82,153,220	1,829,286,335	44,262,242	1,741,117,419	1,139,464,607	95.2	62.3	25.74
1867-73	236,370,251	4,522,811,791	116,768,758	3,808,792,033	3,193,192,795	84.2	70.3	27.34
1874-80	284,553,961	5,259,776,613	136,528,629	3,372,967,410	3,244,920,932	64.1	61.7	23.77
1881-87	411,188,834	6,653,283,001	172,275,071	3,932,344,107	.....	.....	59.1	22.18
1888-94	443,222,367	7,294,581,497	189,118,176	3,843,677,549	.....	.....	52.7	20.32
1862-94	1,457,488,633	21,559,739,237	658,950,876	16,698,898,518	15,353,599,900	65.3	60.0	23.30
1867-94	1,375,335,413	20,574,952,909	614,688,334	14,957,781,009	14,214,135,383	62.2	59.9	23.12
1867-78	429,056,336	8,066,219,021	208,446,238	6,099,522,942	5,355,877,226	75.6	66.4	25.69
1879-86	438,735,118	7,292,705,384	189,307,670	4,444,626,088	.....	.....	60.9	23.48
1887-94	507,543,979	8,371,528,497	216,934,726	4,413,632,069	.....	.....	52.7	20.35
1867-78	429,056,336	8,066,219,021	208,446,238	6,099,522,942	5,355,877,226	75.6	66.4	25.69
1879-82	197,484,566	3,401,504,239	88,592,378	2,303,777,507	.....	.....	67.7	26.00
1883-94	748,794,511	12,262,729,612	317,600,018	6,554,480,650	.....	.....	53.5	20.63
1867-80	510,924,212	9,782,588,404	253,295,587	7,181,759,443	6,438,113,727	73.4	65.8	25.41
1881-94	854,411,201	13,947,864,498	351,393,247	7,776,021,656	.....	.....	55.8	22.13
1876-78	122,177,438	2,279,939,750	58,791,521	1,339,157,800	1,309,199,666	58.8	57.4	22.27
1893-95	184,247,478	3,233,542,554	83,620,634	1,417,404,032	.....	.....	43.8	16.95



TABLE IX. (j).

A exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of corn, oats, wheat, rye, barley, and buckwheat grown in the states of the American Union, together with the total product of said crops in bushels and tons, and its total home or farm value in currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		AVERAGE.		
		Bushels.	Tons.	Currency.	Gold.	Value per Bushel in Cents.		Value per Ton in Dollars, Gold.
						Cur.	Gold.	
1862.	33,594,381	972,801,317	25,488,720	451,501,283	316,384,198	46.4	32.5	12.41
1863.	38,148,517	801,723,028	20,697,166	628,819,208	404,330,751	78.4	50.4	19.53
1864.	40,061,591	916,427,263	23,789,207	1,032,317,348	477,962,932	112.6	52.1	20.09
1865.	41,184,547	1,127,469,185	29,080,928	684,951,109	489,076,512	60.8	43.3	16.81
1866.	61,681,442	1,343,026,868	34,000,340	1,118,904,376	831,345,951	83.3	61.9	24.02
1867.	65,636,444	1,329,729,400	34,167,304	1,284,037,300	927,074,930	96.4	69.7	27.14
1868.	66,715,926	1,450,789,000	37,879,324	1,110,500,583	827,653,661	76.5	57.0	21.85
1869.	69,457,762	1,491,612,100	38,675,954	1,101,884,188	913,063,188	73.9	61.2	23.60
1870.	69,254,016	1,629,027,600	42,992,349	997,423,018	903,110,346	61.2	55.4	21.00
1871.	65,061,951	1,528,776,100	40,074,729	911,845,441	838,959,803	59.6	54.8	20.93
1872.	68,280,197	1,664,331,000	43,706,662	874,594,459	780,036,103	52.6	46.9	17.85
1873.	74,112,137	1,538,892,891	40,263,578	919,217,273	828,667,128	59.7	53.8	20.58
1874.	80,051,289	1,454,180,200	38,302,579	1,015,530,570	907,244,684	69.8	62.4	23.68
1875.	86,863,178	2,032,235,300	53,067,252	1,030,277,099	917,335,122	50.7	45.1	17.28
1876.	93,920,619	1,963,422,100	51,530,944	935,008,844	882,553,847	47.7	44.9	17.12
1877.	93,150,286	2,178,934,646	56,703,711	1,035,571,078	1,020,613,062	47.5	46.8	17.99
1878.	100,956,260	2,302,254,950	60,146,964	913,975,920	913,975,920	39.7	39.7	15.19
1879.	102,260,950	2,437,482,300	64,594,470	1,245,117,719	.....	.....	51.1	19.28
1880.	120,926,286	2,718,193,501	71,881,996	1,361,497,694	.....	.....	50.1	18.94
1881.	123,388,070	2,066,029,570	53,433,999	1,470,937,200	.....	.....	71.2	27.53
1882.	126,568,529	2,699,394,496	70,514,555	1,469,693,393	.....	.....	54.5	20.84
1883.	130,633,558	2,629,319,088	67,391,595	1,280,765,987	.....	.....	48.7	19.01
1884.	136,292,766	2,992,880,000	77,555,590	1,184,311,520	.....	.....	39.6	15.27
1885.	135,876,089	3,015,439,000	77,334,916	1,143,146,759	.....	.....	37.9	14.78
1886.	141,859,656	2,462,579,000	72,755,590	1,162,161,910	.....	.....	46.8	15.97
1887.	141,821,315	2,660,457,000	67,241,102	1,204,289,370	.....	.....	45.2	17.91
1888.	146,281,000	3,209,742,000	82,004,056	1,320,255,398	.....	.....	41.1	16.10
1889.	149,982,093	3,451,316,000	88,335,502	1,163,637,243	.....	.....	33.8	13.21
1890.	140,559,147	2,509,202,000	64,508,442	1,365,701,314	.....	.....	54.4	21.17
1891.	147,692,815	3,515,004,766	90,495,624	1,630,716,656	.....	.....	46.4	18.02
1892.	142,253,455	2,910,124,766	74,295,631	1,222,004,571	.....	.....	42.0	16.45
1893.	140,013,391	2,763,039,958	70,187,383	1,041,789,158	.....	.....	37.7	14.84
1894.	130,392,872	2,435,920,676	60,910,331	1,043,006,948	.....	.....	42.8	17.12
1895.	149,955,163	3,572,309,277	90,686,570	1,017,334,736	.....	.....	28.5	11.22
62-66	214,670,478	5,161,447,661	133,656,361	3,916,523,324	2,519,100,344	75.8	48.8	18.84
67-70	271,064,148	5,901,158,100	153,714,931	4,493,845,089	3,570,902,125	76.2	60.5	23.23
71-74	287,505,574	6,186,180,791	162,357,548	3,721,187,743	3,354,907,718	60.2	54.2	20.66
75-78	374,890,343	8,476,846,996	221,448,871	3,914,832,941	3,734,477,951	46.2	44.1	16.86
79-82	473,143,835	9,921,099,867	260,425,020	5,547,266,006	.....	.....	55.9	21.30
83-86	544,662,060	11,480,217,088	295,037,691	4,770,386,126	.....	.....	41.6	16.17
87-90	578,643,555	11,830,717,000	302,089,102	5,056,883,325	.....	.....	42.7	16.74
91-94	560,332,533	11,624,090,166	295,888,969	4,937,517,333	.....	.....	42.5	16.69
62-66	214,670,478	5,161,447,661	133,656,361	3,916,523,324	2,519,100,344	75.8	48.8	18.84
67-73	478,518,433	10,633,158,691	277,769,900	7,199,502,262	6,018,565,159	67.6	56.6	21.66
74-80	678,128,868	15,086,702,997	396,227,916	7,536,978,924	7,248,338,048	50.0	48.0	18.20
81-87	936,439,974	18,306,098,154	486,227,347	8,915,326,089	.....	.....	47.2	18.34
88-94	907,154,773	20,794,350,166	530,736,969	8,790,111,288	.....	.....	42.3	16.56
62-94	3,094,912,526	70,581,757,669	1,824,618,493	36,358,441,887	33,491,440,928	51.5	47.4	18.35
67-94	3,090,242,048	65,420,310,008	1,690,962,132	32,441,918,563	30,972,340,584	49.6	47.3	18.32
67-78	933,460,065	20,564,185,887	537,521,350	12,129,865,773	10,660,287,794	59.0	51.8	19.83
79-86	1,017,805,895	21,401,316,955	555,462,711	10,317,652,132	.....	.....	48.2	18.57
89-94	1,138,976,088	23,454,807,166	597,978,071	9,904,400,658	.....	.....	42.6	16.71
67-78	933,460,065	20,564,185,887	537,521,350	12,129,865,773	10,660,287,794	59.0	51.8	19.83
79-82	1,173,143,835	9,921,099,867	260,425,020	5,547,266,006	.....	.....	55.9	21.30
83-94	1,683,638,148	34,935,024,254	803,015,762	14,764,786,784	.....	.....	42.3	16.53
67-80	1,156,647,301	25,719,861,688	673,997,816	14,736,481,186	13,206,903,207	57.3	51.6	19.68
81-94	1,933,594,747	39,700,448,320	1,016,964,316	17,705,437,377	.....	.....	44.6	17.41
76-78	288,027,165	6,444,611,696	168,381,619	2,884,555,842	2,817,142,829	44.8	43.7	16.73
93-95	420,361,426	8,771,269,911	221,784,284	3,102,130,842	.....	.....	35.4	13.99

TABLE IX. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per bushel and ton of the combined crops of corn, oats, wheat, rye, barley, and buckwheat raised in the ten Mississippi Valley states, in the Exterior States (including all not embraced in the ten) and the nation, together with the weight in tons and its value in dollars gold, of the annual per capita product of said six crops in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER BUSHEL IN CENTS.			GOLD VALUES PER TON IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862....	75	74	69	27.9	43.7	32.5	10.27	18.39	12.41	.....	.....
1863....	126	98	109	46.2	58.1	50.4	17.25	24.31	19.53	.....	.....
1864....	127	107	112	46.4	63.7	52.1	17.29	26.48	20.09	.....	.....
1865....	99	100	94	36.3	58.7	43.3	13.61	24.67	16.81	.....	.....
1866....	143	120	135	51.7	74.2	61.9	19.49	29.91	24.92	.....	.....
1867....	188	116	152	66.9	72.5	69.7	25.60	28.73	27.14	.....	25.60
1868....	134	104	122	48.2	66.5	57.0	18.27	25.84	21.85	1.024	22.38
1869....	139	118	132	49.9	74.7	61.2	19.06	29.14	23.60	1.024	24.17
1870....	121	112	117	43.6	72.3	55.4	16.41	27.70	21.00	1.115	23.42
1871....	118	117	117	42.6	74.7	54.8	16.16	28.83	20.93	1.013	21.20
1872....	100	100	100	35.9	64.6	46.9	13.63	24.75	17.85	1.077	19.21
1873....	124	107	115	44.3	68.6	53.8	16.85	26.48	20.58	.966	19.88
1874....	151	114	133	54.6	73.8	62.4	20.62	28.31	23.68	.895	21.19
1875....	102	97	97	36.6	62.1	45.1	13.99	23.91	17.28	1.207	20.87
1876....	104	89	96	37.6	57.1	44.9	14.15	22.02	17.12	1.142	19.55
1877....	112	95	101	39.9	59.9	46.8	15.21	23.38	17.99	1.223	22.01
1878....	88	81	81	31.6	55.2	39.7	12.04	21.43	15.19	1.261	19.20
1879....	112	105	108	43.5	67.7	51.1	16.27	26.01	19.28	1.322	25.48
1880....	125	91	106	45.1	59.3	50.1	16.99	22.63	18.94	1.433	27.14
1881....	180	133	154	64.1	84.3	71.2	24.69	32.85	27.53	1.041	28.66
1882....	139	98	111	49.4	63.6	54.5	18.93	24.29	20.84	1.343	27.99
1883....	119	98	107	41.4	62.9	48.7	16.23	24.33	19.01	1.255	23.85
1884....	90	86	85	31.9	55.6	39.6	12.33	21.37	15.27	1.412	21.57
1885....	89	76	83	31.4	50.9	37.9	12.30	19.71	14.78	1.377	20.36
1886....	100	80	89	34.8	51.6	46.8	13.69	19.98	15.97	1.267	20.24
1887....	118	80	100	40.1	52.9	45.2	16.09	20.49	17.91	1.146	20.52
1888....	100	80	90	34.7	53.6	41.1	13.66	20.79	16.10	1.367	22.01
1889....	79	74	74	27.3	47.9	33.8	10.75	18.46	13.21	1.441	19.03
1890....	143	97	118	49.5	62.7	54.4	19.43	24.02	21.17	1.030	21.81
1891....	116	81	101	40.6	57.6	46.4	15.85	22.16	18.02	1.414	25.49
1892....	109	79	92	37.5	50.4	42.0	14.80	19.45	16.45	1.136	18.69
1893....	94	74	83	32.3	47.6	37.7	12.78	18.52	14.84	1.050	15.59
1894....	117	76	96	38.7	48.8	42.8	15.91	18.78	17.12	.892	15.27
1895....	70	58	63	23.8	37.1	28.5	9.48	14.30	11.22	1.300	14.58
1862-66.	113	100	105	41.4	62.3	48.8	15.43	25.74	18.84	.....	.....
1867-70.	142	112	130	51.1	71.5	60.5	19.43	27.83	23.23	1.028	23.88
1871-74.	127	109	110	43.9	70.3	54.2	16.77	27.04	20.66	.986	20.37
1875-78.	101	91	94	36.3	58.5	44.1	13.81	22.64	16.86	1.210	20.40
1879-82.	139	105	119	49.7	67.7	55.9	18.88	26.00	21.30	1.284	27.34
1883-86.	99	81	91	34.6	55.1	41.6	13.53	21.26	16.17	1.328	21.47
1887-90.	106	80	94	36.6	54.1	42.7	14.44	20.84	16.74	1.245	20.84
1891-94.	109	80	93	37.4	51.4	42.5	14.86	19.85	16.69	1.119	18.67
1862-66.	113	100	105	41.4	62.3	48.8	15.43	25.74	18.84	.....	.....
1867-73.	129	110	121	46.2	70.3	56.6	17.54	27.34	21.66	1.024	22.18
1874-80.	113	96	102	42.8	61.7	48.0	15.41	23.77	18.29	1.220	22.31
1881-87.	117	89	103	40.7	59.1	47.2	15.87	22.18	18.34	1.264	23.18
1888-94.	106	80	93	36.6	52.7	42.3	14.48	20.32	16.56	1.188	19.60
1862-94.	114	94	103	40.3	60.0	47.4	15.56	23.30	18.35	.....	.....
1867-94.	114	93	102	40.2	59.9	47.3	15.57	23.12	18.32	1.183	21.67
1867-78.	118	104	111	42.4	66.4	51.8	16.11	25.69	19.83	1.081	21.44
1879-86.	118	95	104	41.6	60.9	48.2	16.14	23.48	18.57	1.307	24.27
1887-94.	108	80	94	37.0	52.7	42.6	14.65	20.35	16.71	1.179	19.71
1867-78.	118	104	111	42.4	66.4	51.8	16.11	25.69	19.83	1.081	21.44
1879-82.	139	105	119	49.7	67.7	55.9	18.88	26.00	21.30	1.284	27.34
1883-94.	105	80	93	36.2	53.5	42.3	14.27	20.63	16.53	1.224	20.24
1867-80.	119	102	110	42.9	65.8	51.6	16.23	25.41	19.68	1.131	22.25
1881-94.	111	89	98	38.6	55.8	44.6	15.15	22.13	17.41	1.221	21.25
1876-78.	101	90	93	36.2	57.4	43.7	13.76	22.27	16.73	1.211	20.25
1893-95.	89	68	78	30.4	43.8	35.4	12.19	16.95	13.99	1.082	15.15

## CHAPTER X.

## POTATOES.

## HIGH PRICES—1867-1870.

The highest average price for potatoes in the United States and for most of the great groups of its states was for the past thirty-three years found in 1881. The highest average for a four-year period was in 1867 to 1870. Potatoes shared the abnormal advance of prices which followed the year 1866 for all American farm staples. The price fell to a lower level not far from 1872, and from that date tended upward until the extraordinarily large crop of 1895. The four-year and seven-year periods ending with 1894 in all the groups of states and in the nation averaged higher than the gold values for 1862 to 1866, but less than the period of exceptionally high price, 1867 to 1870. This can be seen by noting the exhibits shown in Tables (c), (f), (h), and (k).

For the reasons explained in the preceding chapter the index numbers calculated according to the relative importance of the potato crop in the several states and periods show a greater relative advance than those calculated by any other method. They best express the effect of changing prices upon the farmers, although the index numbers for the corrected averages of this report well illustrate the changing prices of an unvarying quantity of this food staple.

## GREAT VARIATION IN THE PRICES OF POTATOES.

A comparison of the data included in this chapter discloses the wide variation in the local prices for potatoes with the different years. It is comparatively difficult and costly to move potatoes long distances, and hence a shortage of the potato crop in any given locality enhances its price relatively more than is experienced by any other of the leading food staples. The great fluctuations to be



noted in some states, notably Iowa, as given in the tables, mark a partial approximation to the changes called for by the law of prices formulated by Gregory King 200 years ago, and given in the introductory chapter. For the nation or great groups of states the potato crop prices conform to the law illustrated by the other crops already passed in review. With all the variations in potatoes grown, and the resulting changes in the average gold value per bushel, the value of the potato crop as a whole tends to become a fixed sum. This tendency of the potato crop and prices is best seen in an exhibit similar to those given in preceding chapters.

TABLE A.

A comparative exhibit showing, for seven-year periods, the reported average yield per acre of potatoes, the reported weight in tons and value in dollars gold of the annual per capita product of potatoes in the United States, and the weight and value of that product when allowance is made for changes in yield as reported by the Department of Agriculture:

YEARS.	Average Yield Per Acre in Bushels.	Average Gold Value Per Bushel.	PER CAPITA PRODUCT.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value in Dollars.	Weight in Tons.	Value in Dollars.
1862-66.....	103.1	39.3	.....	.....	.....	.....
1867-73.....	90.9	57.5	.088	1.68	.0776	1.44
1874-80.....	88.3	48.9	.096	1.87	.0858	1.65
1881-87.....	73.9	52.3	.090	1.58	.0951	1.67
1888-94.....	68.8	32.5	.083	1.46	.0942	1.66

The foregoing exhibit discloses the fact that the main factor in the exceptionally high potato price of 1867 to 1873 was the relatively small crop harvested in these years, since after allowance is made for the extraordinary change in the reported average yield per acre, as given by the government authorities, we note that the per capita product was in weight much less in these earlier seven years than in the later. The value of that per capita product was also slightly lower than for the next thirty-one years, in spite of the exceptionally high average price. The value of the national product of potatoes has been substantially the same for each of these three seven-year periods following 1873. This marks a wonderful fixedness of values, in spite of great temporary local variation due to local and transient causes.

## THE PANIC OF 1893.

marks the only real exception to this uniformity and fixedness of potato values to be seen for the nation. The year 1894 with a per



capita product below the average recorded a lower average value for that product than had been witnessed in the United States since 1874. The year 1895 saw a large crop and a still greater decline in average price and average value of per capita product. In that decreased value of the per capita product is found one measure of the intensity of the force following the panic which has depressed American agricultural prices. Nothing in any of the tables indicates a factor depressing prices before 1893.

NOTE.—The figures for the periods including the years 1889 to 1892 are in part estimated, as has been explained in Chapters VII. and VIII.

TABLE X. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the potatoes raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year and period was of the average gold value in the same states for the year 1872.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66. . .	22,749,369	682,481	17,450,724	.488	25.57	16.26	a14.80	87
1867-70. . .	32,320,000	969,600	24,026,420	.594	24.78	19.81	b 4.12	106
1871-74. . .	27,909,000	837,270	20,359,220	.657	24.32	21.99	.....	118
1875-78. . .	41,210,400	1,236,312	19,023,512	.444	15.39	14.73	.....	79
1879-82. . .	36,355,069	1,090,652	21,041,515	.579	.....	19.29	.....	103
1883-86. . .	52,651,315	1,579,539	21,177,650	.402	.....	13.41	.....	72
1887-90. . .	33,264,000	997,920	17,391,032	.523	.....	17.43	.....	93
1891-94. . .	46,553,304	1,396,599	27,297,540	.588	.....	19.55	.....	105
1862-94. . .	293,012,457	8,790,373	167,767,613	.525	19.09	17.49	.....	94
1862-66. . .	22,749,369	682,481	17,450,724	.488	25.57	16.26	.....	87
1867-73. . .	54,729,000	1,641,870	39,655,640	.610	24.15	20.33	.....	109
1874-80. . .	68,107,200	2,043,216	33,482,836	.471	16.39	15.71	.....	84
1881-87. . .	72,316,584	2,169,497	36,773,211	.509	.....	16.95	.....	91
1888-94. . .	75,110,304	2,253,309	40,405,202	.538	.....	17.93	.....	96
1876-78. . .	28,510,400	855,312	14,451,512	.443	16.90	14.77	.....	79
1893-95. . .	36,583,676	1,091,510	17,843,018	.491	.....	16.35	.....	88
1862. . . . .	5,128,756	153,863	2,615,665	.351	17.00	11.71	.....	63
1872. . . . .	7,751,000	232,530	4,883,130	.559	21.00	18.63	.....	100
1895. . . . .	13,107,924	393,211	4,194,248	.320	.....	10.67	.....	57

## INDIANA.

1862-66. . . .	18,048,275	541,448	12,184,914	.429	22.50	14.31	a7.51	90
1867-70. . . .	13,509,000	405,270	9,545,130	.565	23.55	18.84	b2.40	118
1871-74. . . .	9,848,000	295,440	7,345,770	.673	24.86	22.42	.....	140
1875-78. . . .	19,390,000	581,700	8,378,800	.414	14.40	13.79	.....	86
1879-82. . . .	17,738,170	532,145	10,472,783	.590	.....	19.68	.....	123
1883-86. . . .	29,050,010	871,500	10,269,077	.354	.....	11.78	.....	74
1887-90. . . .	17,836,000	535,080	10,390,040	.583	.....	19.42	.....	121
1891-94. . . .	23,288,380	698,651	14,542,814	.624	.....	20.82	.....	130
1862-94. . . .	148,707,835	4,461,234	83,129,328	.509	18.63	16.97	.....	106
1862-66. . . .	18,048,275	541,448	12,184,914	.429	22.50	14.31	.....	90
1867-73. . . .	21,266,000	637,980	15,197,190	.061	23.82	20.04	.....	125
1874-80. . . .	29,030,200	870,906	13,792,138	.455	15.84	15.17	.....	95
1881-87. . . .	42,407,980	1,272,239	20,032,782	.473	.....	15.75	.....	99
1888-94. . . .	37,955,380	1,138,661	21,922,304	.578	.....	19.25	.....	121
1876-78. . . .	13,940,000	418,200	6,416,800	.429	15.34	14.31	.....	90
1893-95. . . .	18,589,766	557,693	9,424,536	.507	.....	16.90	.....	106
1862. . . . .	4,357,271	130,718	1,742,908	.275	13.33	9.18	.....	57
1872. . . . .	2,801,000	84,030	1,512,540	.479	18.00	15.97	.....	100
1895. . . . .	6,945,576	208,367	2,153,129	.310	.....	10.33	.....	65

TABLE X. (a).—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862.....	6,444,404	193,332	2,577,762	.476	13.33	9.19	.....	68
1863.....	5,155,523	154,666	3,815,087	.276	24.67	15.86	.....	117
1864.....	4,511,083	135,333	5,187,745	.532	38.33	17.75	.....	131
1865.....	5,864,408	175,932	2,770,933	.337	15.75	11.25	.....	83
1866.....	5,102,035	153,061	3,265,302	.476	21.33	15.85	.....	118
1867.....	3,673,000	110,190	4,407,600	.866	40.00	28.88	.....	212
1868.....	3,800,000	114,000	3,078,000	.597	27.00	19.90	.....	146
1869.....	7,500,000	225,000	3,075,000	.338	13.67	11.26	.....	83
1870.....	8,427,000	252,810	5,393,280	.578	21.33	19.26	.....	142
1871.....	7,162,000	214,860	6,087,700	.780	28.33	25.98	.....	191
1872.....	9,668,000	290,040	4,447,280	.408	15.33	13.60	.....	100
1873.....	5,510,000	165,300	6,171,200	1.000	37.33	33.49	.....	246
1874.....	7,438,000	223,140	6,173,540	.738	27.67	24.60	.....	181
1875.....	15,200,000	456,000	4,864,000	.283	10.67	9.45	.....	69
1876.....	9,450,000	283,500	5,764,500	.574	20.33	19.13	.....	141
1877.....	12,834,000	385,020	5,646,960	.433	14.67	14.45	.....	106
1878.....	9,339,800	280,194	4,296,308	.460	.....	15.33	.....	113
1879.....	12,751,200	382,536	6,375,600	.500	.....	16.67	.....	123
1880.....	11,193,750	335,812	6,156,562	.550	.....	18.33	.....	133
1881.....	6,322,464	189,674	6,638,587	1.050	.....	35.00	.....	257
1882.....	11,696,558	350,897	5,848,279	.500	.....	16.67	.....	123
1883.....	12,978,440	389,353	4,672,238	.360	.....	12.00	.....	88
1884.....	10,699,000	320,970	3,637,660	.340	.....	11.33	.....	83
1885.....	12,371,000	371,130	5,195,915	.420	.....	14.00	.....	107
1886.....	9,241,000	277,230	3,973,630	.430	.....	14.33	.....	105
1887.....	4,643,000	139,290	4,178,700	.900	.....	30.00	.....	221
1888.....	11,706,000	351,180	4,213,987	.360	.....	12.00	.....	88
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	8,504,433	255,133	6,293,280	.740	.....	24.67	.....	181
1894.....	8,343,950	250,318	5,340,128	.649	.....	21.33	.....	157
1895.....	13,749,197	412,476	4,124,759	.300	.....	10.00	.....	74
1862-66....	27,077,453	812,324	17,616,829	.408	21.69	13.58	a14.18	100
1867-70....	23,400,000	702,000	15,953,880	.549	22.73	18.31	b 2.37	135
1871-74....	29,778,000	893,340	22,879,720	.690	25.61	23.00	.....	169
1875-78....	46,823,800	1,404,714	20,571,768	.418	14.64	13.95	.....	103
1879-82....	41,963,972	1,258,919	25,019,028	.596	.....	19.87	.....	146
1883-86....	45,289,440	1,358,683	17,479,443	.386	.....	12.86	.....	95
1887-90....	32,698,000	980,940	16,785,374	.513	.....	17.11	.....	126
1891-94....	33,696,766	1,010,903	23,266,816	.690	.....	23.02	.....	169
1862-94....	280,727,431	8,421,823	159,572,858	.522	18.95	17.41	.....	128
1862-66....	27,077,453	812,324	17,616,829	.408	21.69	13.58	.....	100
1867-73....	45,740,000	1,372,200	32,660,060	.610	23.80	20.34	.....	150
1874-80....	78,206,750	2,346,202	39,277,470	.480	16.74	16.03	.....	118
1881-87....	67,951,462	2,038,544	34,145,009	.502	.....	16.75	.....	123
1888-94....	61,751,766	1,552,553	35,873,490	.581	.....	19.36	.....	142
1876-78....	31,623,800	948,714	15,707,768	.464	16.56	15.45	.....	114
1893-95....	30,597,580	917,928	15,758,167	.515	.....	17.17	.....	126
1862.....	6,444,404	193,332	2,577,762	.276	13.34	9.19	.....	68
1872.....	9,668,000	290,040	4,441,280	.408	15.33	13.60	.....	100
1895.....	13,749,197	412,476	4,124,759	.300	.....	10.00	.....	74

TABLE X. (a). — *Continued.*

## MICHIGAN.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66. . . .	23,937,693	718,131	11,711,697	.311	16.31	10.37	a14.15	56
1867-70. . . .	25,900,000	777,000	14,196,500	.437	18.27	14.56	b 8.03	78
1871-74. . . .	26,470,000	794,100	18,764,400	.637	23.63	21.22	.....	114
1875-78. . . .	29,901,000	899,730	12,805,430	.407	14.23	13.58	.....	73
1879-82. . . .	41,888,764	1,256,663	20,398,219	.487	.....	16.23	.....	87
1883-86. . . .	49,608,979	1,488,270	17,092,921	.345	.....	11.49	.....	62
1887-90. . . .	26,192,000	785,760	12,141,744	.464	.....	15.45	.....	83
1891-94. . . .	56,048,480	1,681,454	24,687,946	.440	.....	14.68	.....	79
1862-94. . . .	280,036,916	8,401,108	131,798,857	.436	15.69	14.54	.....	78
1862-66. . . .	23,937,693	718,131	11,711,697	.311	16.31	10.37	.....	56
1867-73. . . .	44,769,000	1,343,070	28,172,270	.531	20.98	17.70	.....	95
1874-80. . . .	59,484,500	1,784,535	26,569,985	.429	14.89	14.31	.....	77
1881-87. . . .	74,090,243	2,222,707	31,744,415	.429	.....	14.28	.....	77
1888-94. . . .	77,755,480	2,332,665	33,600,490	.432	.....	14.40	.....	77
1876-78. . . .	19,366,000	580,980	9,511,680	.453	16.20	15.11	.....	81
1893-95. . . .	51,940,737	1,558,222	16,170,613	.311	.....	10.38	.....	56
1862. . . . .	5,264,733	157,942	1,632,067	.214	10.33	7.12	.....	38
1872. . . . .	6,009,000	180,270	3,785,670	.560	21.00	18.63	.....	100
1895. . . . .	23,916,497	717,495	3,826,640	.160	.....	5.33	.....	29

## WISCONSIN.

1862-66. ....	21,645,881	649,376	9,513,099	.280	14.65	9.32	a12.62	72
1867-70. ....	17,382,000	521,460	11,523,930	.528	22.10	17.61	b 6.03	135
1871-74. ....	21,648,000	649,440	12,215,180	.506	18.80	16.88	.....	129
1875-78. ....	33,227,000	996,810	12,902,020	.370	12.94	12.35	.....	95
1879-82. ....	42,273,270	1,268,198	18,460,300	.437	.....	14.56	.....	112
1883-86. ....	35,865,912	1,075,977	13,030,615	.363	.....	12.11	.....	93
1887-90. ....	38,522,000	1,155,660	19,591,696	.509	.....	16.95	.....	130
1891-94. ....	39,152,782	1,174,584	19,783,928	.505	.....	16.84	.....	129
1862-94. ....	249,716,845	7,491,505	117,020,768	.438	15.62	14.60	.....	112
1862-66. ....	21,645,881	649,376	9,513,099	.280	14.65	9.32	.....	72
1867-73. ....	33,074,000	992,220	20,820,670	.532	20.98	17.73	.....	136
1874-80. ....	66,290,910	1,988,727	25,037,112	.363	12.59	12.11	.....	93
1881-87. ....	59,286,272	1,778,588	28,548,063	.482	.....	16.05	.....	123
1888-94. ....	69,419,782	2,082,594	33,101,824	.477	.....	15.89	.....	122
1876-78. ....	25,627,000	768,810	10,698,020	.390	13.92	12.99	.....	100
1893-95. ....	38,806,431	1,664,193	13,161,171	.237	.....	7.91	.....	61
1862. ....	4,840,631	145,219	1,549,002	.221	10.67	7.35	.....	56
1872. ....	5,226,000	156,780	2,299,440	.390	14.67	13.01	.....	100
1895. ....	19,230,940	576,901	3,269,107	.170	.....	5.67	.....	43



## STATISTICS OF LABOR.

TABLE X. (a).—Continued.

## MISSOURI.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars. Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66. . . .	6,791,186	203,736	4,762,032	.446	23.37	14.87	a7.15	107
1867-70. . . .	6,352,000	190,560	4,186,640	.529	21.97	17.62	b2.34	119
1871-74. . . .	10,442,000	313,260	7,086,530	.612	22.62	20.41	.....	133
1875-78. . . .	23,365,000	700,950	9,406,700	.372	13.42	12.41	.....	84
1879-82. . . .	21,375,019	641,251	11,690,331	.547	.....	18.23	.....	123
1883-86. . . .	23,950,570	718,517	9,130,314	.381	.....	12.71	.....	86
1887-90. . . .	22,148,000	664,440	10,589,140	.478	.....	15.94	.....	108
1891-94. . . .	27,089,526	812,686	14,792,010	.546	.....	18.20	.....	123
1862-94. . . .	141,513,301	4,245,400	71,643,697	.478	16.88	15.94	.....	108
1862-66. . . .	6,791,186	203,736	4,762,032	.446	23.37	14.87	.....	101
1867-73. . . .	14,772,000	443,160	9,554,470	.544	21.56	18.13	.....	122
1874-80. . . .	38,906,520	1,167,196	17,548,552	.433	15.03	14.42	.....	97
1881-87. . . .	36,836,069	1,105,082	17,516,093	.476	.....	15.85	.....	107
1888-94. . . .	44,207,526	1,326,226	22,262,550	.504	.....	16.79	.....	113
1876-78. . . .	17,065,000	511,950	7,075,700	.387	13.82	12.89	.....	89
1893-95. . . .	24,310,039	729,301	10,087,324	.415	.....	13.83	.....	94
1862. . . . .	2,322,657	69,680	962,289	.286	13.81	9.52	.....	64
1872. . . . .	3,171,000	95,130	1,585,500	.444	16.67	14.79	.....	100
1895. . . . .	10,765,276	322,958	2,691,319	.250	.....	8.33	.....	56

## IOWA.

1862.....	3,000,686	108,021	1,052,220	.201	9.74	6.71	.....	103
1863.....	2,880,549	86,417	1,181,025	.264	13.68	8.79	.....	135
1864.....	2,520,481	75,614	2,806,136	.515	37.11	17.18	.....	264
1865.....	3,360,641	100,819	1,445,176	.307	14.33	10.23	.....	157
1866.....	2,755,726	82,672	2,452,596	.661	29.67	22.04	.....	339
1867.....	3,361,000	100,830	2,655,190	.570	26.34	19.01	.....	292
1868.....	3,370,950	101,100	2,123,100	.464	21.00	15.47	.....	238
1869.....	4,500,000	135,000	2,295,000	.420	17.00	14.01	.....	216
1870.....	4,680,000	140,400	2,433,600	.469	17.33	15.65	.....	241
1871.....	6,084,000	182,520	2,311,920	.348	12.67	11.62	.....	179
1872.....	6,631,000	198,930	1,458,820	.195	7.33	6.50	.....	100
1873.....	3,315,000	99,450	2,917,200	.869	29.33	28.95	.....	442
1874.....	4,806,000	144,180	2,403,000	.445	16.67	14.82	.....	228
1875.....	8,700,000	261,000	2,088,000	.213	8.00	7.09	.....	109
1876.....	7,000,000	210,000	5,600,000	.753	26.67	25.09	.....	386
1877.....	9,500,000	285,000	3,610,000	.374	12.67	12.48	.....	192
1878.....	10,070,000	302,100	2,618,200	.260	.....	8.67	.....	133
1879.....	9,090,200	272,706	2,908,864	.320	.....	10.67	.....	164
1880.....	10,241,950	307,259	3,789,521	.370	.....	12.33	.....	190
1881.....	6,541,150	196,234	6,671,973	1.020	.....	34.00	.....	523
1882.....	10,792,897	323,787	4,101,301	.380	.....	12.67	.....	144
1883.....	13,216,868	396,506	3,700,723	.280	.....	9.33	.....	195
1884.....	12,518,000	375,540	3,505,040	.280	.....	9.33	.....	144
1885.....	12,381,000	371,430	5,076,075	.410	.....	13.67	.....	210
1886.....	7,577,000	227,310	3,561,190	.470	.....	15.62	.....	240
1887.....	7,949,000	238,470	4,928,380	.620	.....	20.67	.....	318
1888.....	16,909,000	507,270	4,903,668	.290	.....	9.67	.....	149
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	9,755,310	292,659	6,340,952	.650	.....	21.67	.....	333
1894.....	7,594,015	227,821	5,239,870	.650	.....	23.00	.....	354
1895.....	21,340,980	640,229	4,054,786	.190	.....	6.33	.....	97

TABLE X. (a).—Continued.

IOWA—Continued.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862-66. . . .	15,118,083	453,543	8,937,153	.373	19.71	12.43	a12.83	191
1867-70. . . .	15,911,000	477,359	9,506,890	.476	19.92	15.86	b 2.51	244
1871-74. . . .	20,836,000	625,080	9,090,940	.405	14.54	13.49	.....	208
1875-78. . . .	35,270,000	1,058,100	13,916,200	.377	13.15	12.56	.....	193
1879-82. . . .	36,666,197	1,099,986	17,471,659	.476	.....	15.88	.....	244
1883-86. . . .	45,692,868	1,370,786	15,843,028	.347	.....	11.56	.....	244
1887-90. . . .	49,716,000	1,491,480	19,664,096	.394	.....	13.12	.....	202
1891-94. . . .	34,698,650	1,040,960	23,161,644	.668	.....	22.25	.....	342
1862-94. . . .	253,908,798	7,617,265	117,591,610	.437	15.43	14.58	.....	224
1862-66. . . .	15,118,083	453,543	8,937,153	.373	19.71	12.43	.....	191
1867-73. . . .	31,941,000	958,230	16,194,830	.434	16.90	14.47	.....	223
1874-80. . . .	59,408,150	1,782,245	23,017,585	.373	12.92	12.42	.....	191
1881-87. . . .	70,975,915	2,129,277	31,544,682	.444	.....	14.80	.....	228
1888-94. . . .	76,465,650	2,293,970	37,897,360	.496	.....	16.52	.....	254
1876-78. . . .	26,570,000	797,100	11,828,200	.416	14.84	14.46	.....	223
1893-95. . . .	38,690,305	1,160,709	15,635,608	.404	.....	13.47	.....	207
1862. . . . .	3,600,686	108,020	1,052,220	.201	9.74	6.71	.....	103
1872. . . . .	6,631,000	198,930	1,458,820	.195	7.33	6.50	.....	100
1895. . . . .	21,340,980	640,229	4,054,786	.190	.....	6.31	.....	97

## MINNESOTA.

1862-66. . . .	10,545,312	316,359	4,335,780	.262	13.71	8.72	a6.85	113
1867-70. . . .	10,674,000	320,220	8,250,800	.619	25.77	20.64	b4.14	268
1871-74. . . .	9,326,000	279,780	4,291,560	.417	15.34	13.90	.....	181
1875-78. . . .	13,777,200	413,316	4,518,616	.315	10.93	10.51	.....	137
1879-82. . . .	20,094,248	602,827	8,091,164	.403	.....	13.42	.....	175
1883-86. . . .	21,987,000	659,610	7,151,462	.325	.....	10.84	.....	141
1887-90. . . .	25,096,000	752,880	10,108,278	.403	.....	13.43	.....	175
1891-94. . . .	23,975,070	719,252	11,473,784	.479	.....	15.95	.....	207
1862-94. . . .	135,474,830	4,064,244	58,221,444	.402	14.33	13.39	.....	174
1862-66. . . .	10,545,312	316,359	4,335,780	.262	13.71	8.72	.....	113
1867-73. . . .	17,535,000	526,050	11,334,510	.542	21.54	18.08	.....	235
1874-80. . . .	26,173,040	785,191	8,648,380	.315	11.01	10.51	.....	137
1881-87. . . .	37,111,408	1,113,342	15,098,872	.407	.....	13.56	.....	176
1888-94. . . .	44,110,070	1,323,302	18,803,902	.426	.....	14.21	.....	185
1876-78. . . .	9,277,200	278,316	3,213,616	.323	11.55	11.26	.....	146
1893-95. . . .	35,978,571	1,079,357	9,095,637	.253	.....	8.43	.....	110
1862. . . . .	2,703,926	81,118	675,981	.172	83.3	5.74	.....	75
1872. . . . .	2,216,000	66,480	576,160	.231	8.67	7.69	.....	100
1895. . . . .	23,991,036	719,731	3,358,745	.140	.....	4.67	.....	61

TABLE X. (a).—Continued.

## NEBRASKA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66....	398,306	11,949	542,116	.830	45.37	27.68	a3.51	334
1867-70....	1,727,000	51,810	1,109,280	.510	21.41	17.01	b2.14	205
1871-74....	2,538,000	76,140	1,221,870	.432	16.05	14.38	.....	174
1875-78....	6,600,000	198,000	1,821,000	.263	9.20	8.76	.....	106
1879-82....	6,941,632	208,249	3,604,356	.519	.....	17.31	.....	209
1883-86....	15,005,124	450,154	5,023,284	.335	.....	11.16	.....	135
1887-90....	21,514,000	645,420	9,697,042	.451	.....	15.02	.....	181
1891-94....	14,747,612	442,428	11,554,283	.783	.....	26.12	.....	315
1862-94....	69,471,674	2,084,150	34,573,231	.488	16.59	16.28	.....	197
1862-66....	398,306	11,949	542,116	.830	45.37	27.68	.....	334
1867-73....	3,900,000	119,700	2,047,900	.431	17.11	14.37	.....	174
1874-80....	9,176,750	275,303	3,204,567	.337	11.64	11.24	.....	136
1881-87....	24,081,006	722,430	10,100,203	.419	.....	13.98	.....	169
1888-94....	31,825,612	954,768	18,678,445	.587	.....	19.56	.....	236
1876-78....	4,650,000	139,500	1,450,500	.304	10.40	10.14	.....	122
1893-95....	15,368,179	461,045	8,175,453	.532	.....	17.73	.....	214
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	958,000	28,740	268,240	.248	9.33	8.28	.....	100
1895.....	7,994,373	239,831	2,398,312	.300	.....	10.00	.....	121

## KANSAS.

1862-66....	1,485,626	44,569	1,524,140	.652	34.20	21.75	a6.40	175
1867-70....	5,803,000	174,090	3,567,120	.495	20.49	16.51	b2.47	133
1871-74....	11,365,000	340,950	8,046,540	.630	23.60	20.99	.....	169
1875-78....	17,505,000	525,150	7,833,760	.423	14.92	14.10	.....	114
1879-82....	14,796,217	443,887	12,070,537	.816	.....	27.19	.....	219
1883-86....	26,518,520	795,556	14,018,231	.529	.....	17.62	.....	142
1887-90....	30,980,000	929,400	17,698,606	.571	.....	19.04	.....	153
1891-94....	18,209,474	546,284	13,409,402	.736	.....	24.55	.....	198
1862-94....	126,662,837	3,799,886	78,168,336	.597	20.57	19.90	.....	160
1862-66....	1,485,626	44,569	1,524,140	.652	34.20	21.75	.....	175
1867-73....	16,052,000	481,560	10,363,740	.551	21.52	18.38	.....	148
1874-80....	26,795,700	803,871	15,541,693	.561	19.33	18.71	.....	151
1881-87....	39,567,037	1,187,011	24,129,655	.610	.....	20.33	.....	164
1888-94....	42,762,474	1,282,875	26,609,108	.622	.....	20.74	.....	167
1876-78....	13,025,000	390,750	6,624,160	.496	16.95	16.53	.....	133
1893-95....	16,973,977	509,219	10,009,782	.590	.....	19.66	.....	158
1862.....	354,960	10,649	173,931	.338	16.33	11.25	.....	91
1872.....	3,797,000	113,910	1,594,740	.373	14.00	12.42	.....	100
1895.....	7,869,240	236,077	3,305,081	.420	.....	14.00	.....	113



TABLE X. (b).

An exhibit by years and certain periods of years from 1862 to 1895, inclusive, of the acres of potatoes grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas together with the total product of potatoes in said states in bushels and tons, and its total home or farm value in dollars, currency and gold, and its average home or farm values per bushel and ton in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars, Gold.	AVERAGE VALUE PER BUSHEL IN	
		Bushels.	Tons.	Currency.	Gold.		Cur- rency.	Gold.
1862.	308,638	35,018,024	1,050,541	12,981,825	8,944,477	8.51	37.9	25.5
1863.	355,082	29,072,527	872,176	17,031,168	10,951,041	12.55	58.6	37.7
1864.	292,220	24,786,791	743,604	23,384,510	10,827,028	14.56	94.3	43.7
1865.	274,982	32,370,488	971,114	17,056,699	12,178,483	12.54	52.7	37.6
1866.	308,788	26,549,354	796,481	18,124,282	13,466,342	16.91	68.3	50.7
1867.	379,240	31,897,000	956,910	28,706,960	20,769,745	21.71	90.1	65.1
1868.	373,369	32,460,000	973,800	23,578,700	17,377,502	17.84	72.6	53.5
1869.	391,342	45,700,000	1,371,000	20,773,000	17,116,952	12.49	45.5	37.5
1870.	562,638	42,921,000	1,287,630	28,747,930	25,959,381	20.16	67.0	60.5
1871.	532,456	45,276,000	1,358,280	29,327,800	26,893,593	19.80	64.8	59.4
1872.	578,903	48,228,000	1,446,840	22,411,520	19,879,018	13.74	46.5	41.2
1873.	612,622	37,386,000	1,121,580	32,395,070	29,058,377	25.91	86.7	77.7
1874.	620,262	39,270,000	1,178,100	27,167,340	24,151,765	20.50	69.2	61.5
1875.	669,580	77,505,000	2,325,150	24,199,850	21,441,067	9.22	31.2	27.7
1876.	739,203	55,506,000	1,665,180	32,099,300	30,205,441	18.14	57.8	54.4
1877.	811,173	71,884,000	2,156,520	29,123,960	28,687,101	13.30	40.5	39.9
1878.	818,800	62,264,400	1,867,932	25,754,696	25,754,696	13.79	41.4	41.4
1879.	844,900	78,642,500	2,359,275	32,908,795	.....	13.95	.....	41.8
1880.	863,010	76,507,820	2,295,235	34,866,677	.....	15.19	.....	45.6
1881.	935,510	47,172,338	1,415,170	44,899,457	.....	31.72	.....	95.2
1882.	985,832	77,769,900	2,333,097	35,644,963	.....	15.28	.....	45.8
1883.	1,044,895	95,267,738	2,858,032	34,475,307	.....	12.06	.....	36.2
1884.	1,054,087	89,266,000	2,677,980	28,806,420	.....	10.76	.....	32.3
1885.	1,072,503	88,697,000	2,660,910	35,925,428	.....	13.50	.....	40.5
1886.	1,076,382	72,389,000	2,171,670	31,008,870	.....	14.28	.....	42.8
1887.	1,118,277	54,062,000	1,621,860	38,872,540	.....	23.97	.....	71.9
1888.	1,211,715	94,921,000	2,847,630	33,155,984	.....	11.64	.....	34.9
1889.	.....	.....	.....	.....	.....	.....	.....	.....
1890.	.....	.....	.....	.....	.....	.....	.....	.....
1891.	.....	.....	.....	.....	.....	.....	.....	.....
1892.	.....	.....	.....	.....	.....	.....	.....	.....
1893.	1,383,975	84,724,390	2,541,751	50,939,448	.....	20.04	.....	60.1
1894.	1,466,678	74,005,632	2,220,169	41,045,653	.....	18.49	.....	55.5
1895.	1,588,912	148,909,239	4,467,277	33,376,126	.....	7.47	.....	22.5
62-66	1,539,710	147,797,184	4,433,916	88,578,484	56,367,371	12.71	59.9	38.1
67-70	1,706,589	152,978,000	4,589,340	101,866,590	81,223,580	17.70	66.6	53.1
71-74	2,344,243	170,160,000	5,104,800	111,301,730	99,982,753	19.59	65.4	58.8
75-78	3,038,756	267,159,400	8,014,782	111,177,806	106,088,305	13.24	41.6	39.7
79-82	3,629,252	280,092,558	8,402,777	148,319,892	.....	17.65	.....	53.0
83-86	4,247,867	345,619,738	10,368,592	130,216,025	.....	12.56	.....	37.7
87-90	4,659,984	297,966,000	8,938,980	144,057,048	.....	16.11	.....	48.3
91-94	5,701,306	317,460,044	9,523,801	183,970,167	.....	19.32	.....	58.0
62-66	1,539,710	147,797,184	4,433,916	88,578,484	56,367,371	12.71	59.9	38.1
67-73	3,430,570	283,868,000	8,516,040	186,000,980	157,054,568	18.44	65.5	55.3
74-80	5,366,928	461,579,720	13,847,392	206,120,618	198,015,542	14.30	44.7	42.9
81-87	7,287,486	524,623,976	15,738,719	249,632,985	.....	15.86	.....	47.6
88-94	9,243,013	561,364,044	16,840,921	289,154,675	.....	17.17	.....	51.5
62-94	26,867,707	1,979,232,924	59,376,988	1,019,487,742	950,225,141	16.00	51.6	48.0
67-94	25,327,997	1,831,435,740	54,943,072	930,900,258	893,857,770	16.27	50.9	48.8
67-78	7,089,588	590,297,400	17,708,922	324,346,126	287,294,638	16.22	54.9	48.7
79-86	7,877,119	625,712,296	18,771,369	278,535,917	.....	14.34	.....	44.5
87-94	10,361,290	615,426,044	18,462,781	328,027,215	.....	17.76	.....	53.2
67-78	7,089,588	590,297,400	17,708,922	324,346,126	287,294,638	16.22	54.9	48.7
79-82	3,629,252	280,092,558	8,402,777	148,319,892	.....	17.65	.....	53.0
83-94	14,609,157	961,045,782	28,831,373	458,243,240	.....	15.89	.....	47.7
67-80	8,797,498	745,447,720	22,363,432	392,121,598	355,070,110	15.88	52.6	47.6
81-94	16,530,499	1,085,988,020	32,579,640	538,787,660	.....	16.54	.....	49.6
76-78	2,369,176	189,654,400	5,689,632	86,977,956	84,647,238	14.88	45.9	44.6
93-95	4,439,565	307,639,261	9,229,177	125,361,209	.....	13.58	.....	40.7



TABLE X. (c).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the potatoes raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates, per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Ten States.	According to Relative Importance. (a)
		Per Ton.	Per Bushel.		(1)	(2)	(3)		
1862-66....	\$12.71	\$13.67	0.410	10.53	93	100	110	132	89
1867-70....	17.70	17.59	.528	13.98	129	129	146	154	123
1871-74....	19.59	19.32	.580	11.60	142	142	121	154	140
1875-78....	13.24	13.20	.396	10.76	96	97	112	107	97
1879-82....	17.65	17.89	.537	14.40	128	131	150	154	129
1883-86....	12.56	12.50	.375	9.81	93	92	102	114	92
1887-90....	16.11	16.28	.488	11.24	117	120	116	137	128
1891-94....	19.32	19.66	.590	16.66	141	144	174	180	139
1862-66....	12.71	13.67	.410	10.53	93	100	110	132	89
1867-73....	18.44	18.21	.546	12.58	134	134	131	152	129
1874-80....	14.30	14.23	.427	10.39	104	105	109	128	104
1881-87....	15.86	15.87	.476	12.03	115	117	135	136	119
1888-94....	17.17	17.00	.510	14.71	125	125	153	151	129
1862-94....	16.00	16.00	.480	13.52	116	118	141	138	117
1876-78....	14.88	14.19	.426	12.57	108	104	131	118	110
1893-95....	13.58	13.77	.413	11.59	99	101	121	122	97
1862.....	8.51	8.87	.266	6.85	62	65	72	68	60
1872.....	13.74	13.61	.408	9.56	100	100	100	100	100
1895.....	7.47	8.22	.247	7.00	54	60	73	72	59

\*Computed by Sauerbeck's method.

TABLE X. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in bushels and tons of the potatoes raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency, and its average home or farm value per bushel and ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent-ages.	Index Nos.	
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.			Gold.
1862.....	33,059,235	991,777	12,562,509	.262	12.66	8.73	47	
1863.....	29,753,393	892,602	14,876,606	.322	16.66	10.72	58	
1864.....	29,753,312	892,599	19,637,186	.305	22.00	10.18	55	
1865.....	30,249,200	907,476	18,754,504	.443	20.66	14.75	79	
1866.....	31,156,676	934,700	21,498,106	.513	23.00	17.09	92	
1867.....	24,925,000	947,750	22,432,500	.650	30.00	21.66	116	
1868.....	25,340,600	760,200	19,258,400	.560	25.23	18.67	100	
1869.....	28,500,000	855,000	14,535,000	.420	17.00	14.01	75	
1870.....	25,121,000	753,630	16,328,650	.587	21.67	19.56	105	
1871.....	26,377,000	791,310	12,660,960	.440	16.00	14.67	79	
1872.....	23,739,000	712,170	14,955,570	.559	21.00	18.63	100	
1873.....	24,925,000	747,750	13,459,500	.485	18.00	16.15	87	
1874.....	25,423,000	762,690	14,491,110	.503	19.00	16.76	90	
1875.....	35,000,000	1,050,000	12,600,000	.319	12.00	10.63	57	
1876.....	23,000,000	690,000	18,400,000	.753	26.67	25.09	135	
1877.....	39,300,000	1,179,000	18,506,000	.414	14.00	13.79	74	
1878.....	18,135,600	544,068	14,689,836	.810	.....	27.00	145	
1879.....	38,407,200	1,152,216	13,826,592	.360	.....	12.00	64	
1880.....	32,571,900	977,157	13,680,198	.420	.....	14.00	75	
1881.....	20,143,914	604,317	17,525,205	.870	.....	29.00	156	
1882.....	30,618,749	918,563	18,677,437	.610	.....	20.33	109	
1883.....	38,472,768	1,154,183	15,004,380	.390	.....	13.00	70	
1884.....	33,904,000	1,017,120	13,222,560	.390	.....	13.00	70	
1885.....	19,956,000	599,880	8,998,290	.450	.....	15.00	81	
1886.....	27,995,000	839,850	11,477,950	.410	.....	13.67	73	
1887.....	23,327,000	699,810	14,462,740	.620	.....	20.67	111	
1888.....	29,688,000	890,640	11,281,592	.380	.....	12.67	68	
1889.....	.....	.....	.....	.....	.....	.....	.....	
1890.....	.....	.....	.....	.....	.....	.....	.....	
1891.....	.....	.....	.....	.....	.....	.....	.....	
1892.....	.....	.....	.....	.....	.....	.....	.....	
1893.....	25,010,370	750,311	13,755,704	.550	.....	18.33	98	
1894.....	29,162,056	874,862	13,997,787	.480	.....	16.00	86	
1895.....	51,749,350	1,552,481	11,902,351	.230	.....	7.66	41	
1862-66.....	153,971,816	4,619,154	87,329,001	.368	18.90	12.27	a-57.79 66	
1867-70.....	103,886,000	3,116,580	72,554,550	.560	23.28	18.33	b-6.98 98	
1871-74.....	100,464,000	3,013,920	55,567,140	.496	18.43	16.53	89	
1875-78.....	115,435,600	3,463,068	62,195,836	.513	17.96	17.10	92	
1879-82.....	121,741,763	3,652,253	63,709,432	.523	.....	17.44	94	
1883-86.....	120,367,768	3,611,033	48,703,180	.405	.....	13.50	72	
1887-90.....	106,030,000	3,180,900	51,488,664	.486	.....	16.19	87	
1891-94.....	108,344,852	3,250,346	55,506,982	.512	.....	17.07	92	
1862-66.....	153,971,816	4,619,154	87,329,001	.368	18.90	12.27	66	
1867-73.....	178,927,000	5,367,810	113,630,580	.527	21.16	17.52	94	
1874-80.....	211,837,700	6,355,131	104,193,736	.463	16.40	15.75	85	
1881-87.....	194,457,431	5,833,723	99,368,562	.511	.....	17.04	91	
1888-94.....	191,047,852	5,731,436	92,532,906	.484	.....	16.13	87	
1862-94.....	930,241,799	27,907,254	497,054,785	.475	17.80	15.85	85	
1876-78.....	80,435,600	2,413,068	49,595,836	.601	20.55	20.04	108	
1893-95.....	105,921,776	3,177,653	39,655,842	.374	.....	12.48	67	
1862.....	33,059,235	991,777	12,562,509	.260	12.67	8.73	47	
1872.....	23,739,000	712,170	14,955,570	.559	21.00	18.63	100	
1895.....	51,749,350	1,552,481	11,902,351	.230	.....	7.67	41	

TABLE X. (d).—Continued.

## PENNSYLVANIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.		Percent- ages.	Index Nos.	
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.			Gold.
1862-66.....	69,545,306	2,086,359	51,302,921	.469	24.56	15.64	a-26.77	84
1867-70.....	50,063,000	1,501,890	41,103,960	.657	27.37	21.91	b-6.98	118
1871-74.....	42,735,000	1,282,050	27,670,850	.585	21.59	19.49	.....	104
1875-78.....	41,511,000	1,245,330	23,002,700	.532	18.47	17.74	.....	95
1879-82.....	55,622,400	1,668,672	30,517,420	.549	.....	18.29	.....	98
1883-86.....	60,828,440	1,824,853	26,812,713	.441	.....	14.70	.....	79
1887-90.....	53,962,000	1,618,860	27,990,240	.519	.....	17.29	.....	93
1891-94.....	56,716,656	1,701,500	33,235,578	.586	.....	19.53	.....	103
1862-66.....	69,545,306	2,086,359	51,302,921	.469	24.56	15.64	.....	84
1867-73.....	83,575,000	2,507,250	61,488,640	.618	24.52	20.59	.....	110
1874-80.....	81,683,920	2,450,517	43,218,336	.505	17.64	16.85	.....	90
1881-87.....	96,176,920	2,885,308	51,873,867	.539	.....	17.98	.....	97
1888-94.....	100,002,656	3,000,080	53,752,618	.538	.....	17.92	.....	96
1862-94.....	430,983,802	12,929,514	261,636,382	.536	20.24	17.88	.....	96
1876-78.....	29,261,000	877,830	17,857,700	.595	20.34	19.83	.....	107
1893-95.....	51,551,556	1,546,547	23,111,893	.448	.....	14.94	.....	80
1862.....	14,609,335	438,280	7,304,667	.340	16.67	11.49	.....	62
1872.....	11,161,000	334,830	7,031,430	.559	21.00	18.63	.....	100
1895.....	23,193,228	695,797	6,494,104	.280	.....	9.33	.....	53

## KENTUCKY.

1862-66.....	4,437,589	133,128	3,839,305	.627	28.84	20.89	a-4.48	122
1867-70.....	7,286,000	218,580	4,914,280	.532	22.48	17.72	b-2.60	103
1871-74.....	6,961,000	208,830	4,923,210	.630	23.57	21.08	.....	123
1875-78.....	8,280,000	248,400	3,849,300	.440	15.49	14.65	.....	81
1879-82.....	7,954,736	238,642	4,695,132	.590	19.67	19.67	.....	115
1883-86.....	14,825,600	444,768	6,022,104	.406	.....	13.53	.....	76
1887-90.....	11,050,000	331,500	7,106,054	.643	.....	21.43	.....	125
1891-94.....	11,327,764	339,833	6,343,548	.560	.....	18.66	.....	109
1862-66.....	4,437,589	133,128	3,839,305	.627	28.84	20.89	.....	122
1867-73.....	13,292,000	398,760	8,892,040	.559	22.30	18.64	.....	109
1874-80.....	12,766,000	382,980	6,561,240	.488	17.13	16.28	.....	95
1881-87.....	21,546,336	646,390	10,857,256	.504	.....	16.80	.....	98
1888-94.....	20,080,764	602,423	11,543,092	.575	.....	19.16	.....	112
1862-94.....	72,122,689	2,163,681	41,692,933	.539	19.26	17.96	.....	105
1876-78.....	6,630,000	189,900	3,040,800	.468	16.01	15.61	.....	91
1893-95.....	9,572,066	287,162	4,695,966	.491	.....	16.35	.....	95
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	2,145,000	64,350	1,244,100	.515	19.33	17.15	.....	100
1895.....	3,908,184	117,245	1,524,192	.390	.....	13.00	.....	76

TABLE X. (d).—Continued.

## VIRGINIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent-ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency	Gold.		
1862-66.....	1,592,166	47,765	1,050,830	.490	22.00	16.35	a-3.21	76
1867-70.....	5,254,000	157,620	3,673,080	.559	23.30	18.63	b-3.58	87
1871-74.....	4,564,000	136,920	3,176,480	.627	23.20	20.89	.....	98
1875-78.....	5,490,800	164,724	2,936,600	.512	17.83	17.06	.....	80
1879-82.....	6,196,126	185,884	3,844,764	.620	.....	20.68	.....	97
1883-86.....	8,906,428	267,193	4,752,739	.534	.....	17.78	.....	93
1887-90.....	8,480,000	254,400	4,657,050	.549	.....	18.31	.....	86
1891-94.....	11,161,360	334,840	6,314,860	.567	.....	18.90	.....	89
1862-66.....	1,592,166	47,765	1,050,830	.490	22.00	16.35	.....	76
1867-73.....	8,750,000	262,500	6,166,040	.593	23.49	19.78	*	93
1874-78.....	9,208,950	276,269	4,964,769	.517	17.97	17.22	.....	81
1879-82.....	14,346,404	430,392	8,408,194	.586	.....	19.54	.....	92
1883-86.....	17,747,360	562,420	9,816,570	.553	.....	18.44	.....	87
1862-94.....	51,644,880	1,549,346	30,406,403	.561	19.63	18.69	.....	89
1876-78.....	4,280,800	128,428	2,307,400	.526	17.97	17.52	.....	82
1893-95.....	8,612,005	258,360	4,309,334	.500	.....	16.68	.....	78
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	1,080,000	32,400	777,600	.639	24.00	21.29	.....	100
1895.....	3,031,325	90,940	1,151,904	.380	.....	12.67	.....	59

## GEORGIA.

1862-66.....	258,221	7,747	198,830	.650	25.66	21.65	a-0.66	58
1867-70.....	1,225,000	36,750	1,478,420	.964	40.24	32.12	b-1.11	85
1871-74.....	790,000	23,700	984,490	1.122	41.54	37.39	.....	94
1875-78.....	685,050	20,551	725,444	1.013	35.30	33.77	.....	89
1879-82.....	1,453,076	43,592	1,275,707	.878	.....	29.27	.....	78
1883-86.....	2,348,348	70,450	2,229,643	.950	.....	31.65	.....	84
1878-90.....	2,248,000	67,440	2,023,276	.900	.....	30.00	.....	80
1891-94.....	1,647,828	49,435	1,441,196	.875	.....	29.15	.....	78
1862-66.....	258,221	7,747	198,830	.650	25.66	21.65	.....	58
1867-73.....	1,856,000	55,680	2,289,600	1.040	41.11	34.67	.....	92
1874-80.....	1,605,650	48,169	1,739,714	1.041	49.56	34.69	.....	92
1881-87.....	3,525,824	103,774	3,101,790	.880	.....	29.33	.....	78
1888-94.....	3,409,828	102,295	3,027,072	.888	.....	29.59	.....	78
1862-94.....	10,655,523	319,665	10,357,006	.929	32.40	30.96	.....	82
1876-78.....	345,050	10,351	317,446	.897	30.67	29.90	.....	79
1893-95.....	1,187,980	35,639	979,085	.724	.....	27.47	.....	73
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	202,000	6,060	256,540	1.127	42.33	37.55	.....	100
1895.....	364,066	10,922	258,487	.710	.....	23.67	.....	60



TABLE X. (d).—Continued.

## TEXAS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66.....	250,822	7,525	175,575	.520	23.23	17.34	a-0.94	31
1867-70.....	1,443,000	43,290	1,891,070	1.044	38.07	34.82	b-0.87	44
1871-74.....	971,000	29,130	1,673,670	1.548	57.45	51.59	.....	92
1875-78.....	2,098,800	62,964	2,001,232	.910	31.78	30.32	.....	54
1879-82.....	1,826,620	54,799	1,992,237	1.090	.....	36.36	.....	65
1883-86.....	2,278,900	68,367	2,079,645	.913	.....	30.42	.....	54
1887-90.....	2,574,000	77,220	2,130,608	.828	.....	27.59	.....	49
1891-94.....	3,681,816	110,454	3,702,304	1.001	.....	33.65	.....	62
1862-66.....	250,822	7,525	175,575	.520	23.33	17.34	.....	31
1867-73.....	2,181,000	65,430	3,217,570	1.151	45.48	38.37	.....	69
1874-80.....	3,395,460	101,864	3,607,504	1.021	35.40	34.03	.....	60
1881-87.....	3,628,860	108,866	3,352,820	.924	.....	30.79	.....	55
1888-94.....	5,668,816	170,064	5,292,872	.934	.....	31.12	.....	56
1862-94.....	15,124,958	453,749	15,046,341	.989	33.92	32.96	.....	59
1876-78.....	1,698,800	50,964	1,513,232	.869	29.69	28.95	.....	52
1893-95.....	3,116,990	93,510	2,846,496	.913	.....	30.44	.....	55
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	270,000	8,100	510,300	1.675	63.00	55.88	.....	100
1895.....	1,276,082	38,282	995,344	.780	.....	26.00	.....	47

## CALIFORNIA.

1862-66.....	1,298,470	38,954	805,054	.610	.....	20.33	a-6.15	30
1867-70.....	6,365,000	190,950	5,556,570	.813	.....	29.09	b-3.98	89
1871-74.....	9,665,000	271,950	9,036,750	.997	.....	33.22	.....	100
1875-78.....	15,077,600	452,328	13,300,048	.883	.....	29.42	.....	88
1879-82.....	18,663,598	559,908	13,351,783	.662	.....	22.06	.....	66
1883-86.....	19,653,906	589,617	12,223,967	.622	.....	20.72	.....	60
1887-90.....	19,024,000	570,720	11,198,478	.588	.....	19.61	.....	59
1891-94.....	9,928,720	297,862	4,936,502	.497	.....	16.56	.....	50
1862-66.....	1,298,470	38,954	805,054	.310	.....	10.33	.....	30
1867-73.....	12,742,000	382,260	11,609,640	.911	.....	30.37	.....	90
1874-80.....	27,515,500	825,465	23,391,443	.850	.....	28.34	.....	85
1881-87.....	3,637,604	1,009,128	21,357,935	.635	.....	21.17	.....	63
1888-94.....	23,882,720	716,482	13,245,080	.555	.....	18.49	.....	55
1862-94.....	99,076,294	2,972,289	70,409,152	.701	.....	23.38	.....	70
1876-78.....	11,577,600	347,328	10,010,048	.865	.....	28.82	.....	86
1893-95.....	6,852,785	205,583	3,374,695	.493	.....	16.42	.....	49
1862.....	1,298,474	38,954	805,054	.620	.....	20.67	.....	60
1872.....	1,900,000	57,000	2,147,000	1.002	.....	33.40	.....	100
1895.....	1,888,425	56,653	906,444	.480	.....	16.00	.....	48

TABLE X. (c).

An exhibit of the total product in bushels and tons of the potatoes raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66.....	231,354,390	6,940,632	144,701,516	.406	20.86	13.54	68
1867-70.....	175,522,000	5,265,690	131,171,930	.593	24.91	19.95	100
1871-74.....	165,550,000	4,966,500	103,032,590	.565	20.75	18.82	95
1875-78.....	188,578,850	5,657,365	108,011,160	.551	19.09	19.09	96
1879-82.....	213,458,319	6,403,750	119,386,475	.559	.....	18.64	94
1883-86.....	229,209,390	6,876,281	102,823,991	.450	.....	14.95	75
1887-90.....	203,368,000	6,101,040	106,594,370	.528	.....	17.47	88
1891-94.....	202,808,996	6,084,270	111,480,970	.550	.....	18.32	92
1862-66.....	231,354,390	6,940,632	144,701,516	.406	20.86	13.54	68
1867-73.....	301,323,000	9,039,690	207,294,110	.579	22.93	19.29	97
1874-80.....	348,013,180	10,440,395	187,676,742	.519	17.98	17.30	87
1881-87.....	367,319,379	11,019,581	198,320,424	.540	.....	18.00	91
1888-94.....	361,839,996	10,855,200	189,210,210	.523	.....	17.43	88
1862-94.....	1,609,849,945	48,295,498	927,203,002	.520	19.20	17.32	87
1867-94.....	1,378,495,555	41,354,866	782,501,486	.539	18.92	17.95	90
1867-78.....	529,650,850	15,889,525	342,215,680	.571	21.54	19.03	96
1879-86.....	442,667,709	13,280,031	222,210,466	.502	.....	16.73	84
1887-94.....	406,176,996	12,185,310	218,075,340	.537	.....	17.90	90
1867-78.....	529,650,850	15,889,525	342,215,680	.571	21.54	19.03	96
1879-82.....	213,458,319	6,403,750	119,386,475	.560	.....	18.64	94
1883-94.....	635,386,386	19,061,591	320,899,331	.505	.....	16.84	85
1867-80.....	649,336,180	19,480,085	394,970,852	.547	20.28	18.22	92
1881-94.....	729,159,375	21,874,781	387,530,634	.531	.....	17.72	89
1876-78.....	134,228,850	4,017,869	84,642,462	.617	21.07	20.60	104
1893-95.....	186,815,158	5,604,454	78,973,311	.423	.....	14.09	71
1862.....	38,967,044	1,469,011	20,672,230	.372	14.07	9.87	50
1872.....	40,497,000	1,214,910	26,922,540	.596	22.16	19.85	100
1895.....	85,410,660	2,562,320	23,232,826	.272	.....	9.07	46

TABLE X. (f).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the potatoes raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column—			Average of Index Numbers for Seven States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	13.54	13.68	.410	8.24	68	67	97	67	72
1867-70....	19.95	20.18	.605	11.66	100	102	138	89	102
1871-74....	18.82	19.16	.575	9.30	95	95	109	100	95
1875-78....	19.09	18.15	.545	8.37	96	91	99	83	91
1879-82....	18.64	18.41	.552	11.69	94	92	138	87	91
1883-86....	14.95	14.68	.440	7.37	75	73	87	74	73
1887-90....	17.47	17.20	.516	8.94	88	86	106	83	84
1891-94....	18.32	18.06	.542	12.06	92	90	142	83	95
1862-66....	13.54	13.68	.410	8.24	68	67	97	67	72
1867-73....	19.29	19.49	.585	10.20	97	97	120	94	98
1874-80....	17.30	17.18	.515	18.23	87	85	215	84	85
1881-87....	18.00	17.80	.534	10.59	91	89	125	82	88
1888-94....	17.43	17.19	.516	12.33	88	85	146	81	85
1862-94....	17.32	17.32	.520	7.20	87	86	85	84	86
1876-78....	20.60	20.39	.612	10.27	104	100	121	86	100
1893-95....	14.09	13.96	.419	9.28	71	70	109	71	78
1862.....	9.87	11.27	.338	7.27	50	56	86	56	63
1872.....	19.86	20.23	.606	8.46	100	100	100	100	100
1895.....	9.07	9.30	.279	6.40	46	46	75	55	46.

(a) Computed by Sauerbeck's method.

TABLE X. (g).

An exhibit of the total product in bushels and tons of the potatoes raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per bushel and ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Bushels.	Tons.		Per Bushel, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66.....	379,151,574	11,374,548	233,280,000	.397	20.51	13.22	80
1867-70.....	328,500,000	9,855,000	233,038,520	.567	23.65	18.90	114
1871-74.....	335,710,000	10,071,300	214,334,320	.576	21.28	19.21	116
1875-78.....	455,718,250	13,672,147	219,188,966	.461	16.03	15.36	93
1879-82.....	493,550,877	14,806,527	267,706,367	.542	.....	18.08	109
1883-86.....	574,829,128	17,244,873	233,040,016	.405	.....	13.51	82
1887-90.....	501,334,000	15,040,020	250,651,418	.500	.....	16.67	101
1891-94.....	520,269,040	15,608,071	295,451,137	.568	.....	18.93	115
1862-66.....	379,151,574	11,374,548	233,280,000	.397	20.51	13.22	80
1867-73.....	585,191,000	17,555,730	393,295,090	.566	22.40	18.88	114
1874-80.....	809,592,900	24,287,787	393,797,360	.468	16.21	15.59	94
1881-87.....	891,943,355	26,758,300	447,953,409	.502	.....	16.74	101
1888-94.....	923,204,040	27,696,121	478,364,885	.518	.....	17.27	104
1862-94.....	3,589,082,869	107,672,486	1,946,690,744	.498	18.08	16.60	100
1867-94.....	3,209,931,295	96,297,938	1,713,410,744	.510	17.79	16.99	103
1867-78.....	1,119,948,250	33,598,447	666,561,786	.526	19.84	17.55	106
1879-86.....	1,068,380,005	32,051,400	500,746,383	.469	.....	15.62	94
1887-94.....	1,021,603,040	30,648,091	546,102,555	.534	.....	17.82	108
1867-78.....	1,119,948,250	33,598,447	666,561,786	.526	19.84	17.55	106
1879-82.....	493,550,877	14,806,527	267,706,367	.542	.....	18.08	109
1883-94.....	1,596,432,168	47,892,964	779,142,571	.488	.....	16.27	98
1867-80.....	1,394,784,000	41,843,517	787,092,450	.509	18.81	16.97	103
1881-94.....	1,815,147,395	54,454,421	926,318,294	.513	.....	17.01	103
1876-78.....	323,883,250	9,707,501	171,620,418	.517	17.68	17.25	104
1893-95.....	494,454,419	14,833,631	204,334,520	.413	.....	13.78	83
1862.....	73,985,068	2,519,552	33,654,055	.279	13.36	9.30	56
1872.....	88,725,000	2,661,750	49,334,060	.496	18.53	16.53	100
1895.....	234,319,899	7,029,597	56,608,952	.242	.....	8.05	49



TABLE X. (h).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the potatoes raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY				INDEX NUMBERS.				
	Simple Division. (1)	Method for Correcting Averages Adopted in this Report. (2)		Allowing for Influence of Changing Freight Rates per Ton. (3)	Corresponding to Column			Average of Index Numbers for Seventeen States.	According to Relative Importance. (a)
		Per Ton.	Per Bus.		(1)	(2)	(3)		
1862-66....	\$13.22	\$13.68	\$0.410	\$0.40	80	80	101	105	77
1867-70....	18.90	18.88	.566	12.80	114	111	137	127	110
1871-74....	19.21	19.24	.577	10.45	116	114	112	132	115
1875-78....	15.36	15.67	.470	9.56	93	91	103	97	93
1879-82....	18.08	18.15	.545	13.00	109	107	140	127	105
1883-86....	13.51	13.59	.408	8.58	82	80	92	98	82
1887-90....	16.67	16.74	.502	10.10	101	98	109	115	105
1891-94....	18.93	18.86	.566	14.36	115	111	155	128	115
1862-66....	13.22	13.68	.410	9.40	80	80	101	105	77
1867-73....	18.88	18.85	.566	11.40	114	111	112	128	111
1874-80....	15.59	15.70	.471	9.31	94	91	100	110	94
1881-87....	16.74	16.83	.505	11.76	101	98	127	113	102
1888-94....	17.27	17.09	.513	13.02	104	102	140	123	107
1862-94....	16.60	16.60	.499	10.36	100	98	111	116	105
1876-78....	17.25	17.29	.519	11.41	104	102	112	105	105
1893-95....	13.78	13.86	.416	10.44	83	81	112	101	85
1862.....	9.30	10.07	.302	7.06	56	59	76	65	55
1872.....	16.55	16.92	.507	9.27	100	100	100	100	100
1895.....	8.05	9.26	.277	7.20	49	54	77	55	53

(a) Computed by Sauerbeck's method.

TABLE X. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of potatoes raised in the states of the American Union not included in the ten given in Tables (a) to (c), and referred to in tables as the Exterior States, together with the total product of potatoes in said states in bushels and tons, and its total home or farm value in currency and gold, and its average home or farm value per bushel and ton in gold and currency.

YEAR.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value per Ton in Dol- lars, Gold.	Average Value per Bushel in Cents.	
		Bushels.	Tons.	Currency.	Gold.		Cur.	Gold.
1862.	631,431	77,559,458	2,326,783	31,607,316	22,027,813	9.47	40.7	28.4
1863.	774,722	69,892,671	2,096,780	37,930,122	24,389,068	11.63	54.3	34.9
1864.	610,075	71,745,238	2,152,357	53,799,533	24,909,184	11.57	75.0	34.7
1865.	689,632	68,661,607	2,059,849	48,161,729	34,387,475	16.69	70.2	50.1
1866.	760,593	80,651,622	2,419,548	54,814,747	40,727,357	16.83	68.0	50.5
1867.	812,955	65,886,000	1,976,580	60,500,870	43,688,126	22.10	91.9	66.3
1868.	758,183	73,630,000	2,208,900	61,571,340	45,693,552	20.69	83.6	62.1
1869.	830,908	88,166,000	2,644,980	50,878,730	42,257,770	15.98	57.7	41.9
1870.	757,481	71,854,000	2,155,620	53,920,660	48,929,078	22.70	75.1	68.1
1871.	688,456	75,185,700	2,255,571	42,008,871	39,107,299	17.34	56.6	52.0
1872.	752,428	65,288,000	1,958,640	45,679,600	40,760,416	20.81	70.0	62.4
1873.	682,517	68,703,000	2,061,090	42,379,820	38,259,839	18.56	61.7	55.7
1874.	689,779	66,711,000	2,001,330	44,655,990	40,030,364	20.00	67.0	60.0
1875.	840,461	89,372,000	2,681,160	40,819,570	36,541,199	13.63	45.7	40.9
1876.	1,002,780	71,321,000	2,139,630	51,762,090	48,904,007	22.86	72.6	68.6
1877.	981,114	98,208,000	2,946,240	47,125,540	46,454,657	15.77	48.0	47.3
1878.	958,000	61,862,250	1,855,868	47,304,429	47,304,429	25.49	76.5	76.5
1879.	991,900	102,983,900	3,089,517	46,244,878	.....	14.97	.....	44.9
1880.	979,500	91,151,750	2,734,552	46,195,537	.....	16.90	.....	50.7
1881.	1,106,160	61,973,156	1,859,195	54,391,884	.....	29.25	.....	87.8
1882.	1,185,803	93,202,608	2,796,078	59,659,881	.....	21.34	.....	64.0
1883.	1,244,380	112,896,687	3,386,901	53,373,684	.....	15.76	.....	47.3
1884.	1,166,893	101,376,000	3,041,280	46,717,870	.....	15.36	.....	46.1
1885.	1,193,320	86,332,000	2,589,960	42,227,975	.....	16.34	.....	49.0
1886.	1,210,754	95,662,000	2,869,860	47,433,070	.....	16.53	.....	49.6
1887.	1,239,054	80,041,000	2,401,230	52,634,200	.....	21.92	.....	65.8
1888.	1,321,565	107,444,000	3,223,320	48,257,605	.....	14.97	.....	44.9
1889.	.....	.....	.....	.....	.....	.....	.....	.....
1890.	.....	.....	.....	.....	.....	.....	.....	.....
1891.	.....	.....	.....	.....	.....	.....	.....	.....
1892.	.....	.....	.....	.....	.....	.....	.....	.....
1893.	1,221,211	98,309,813	2,949,295	57,722,353	.....	19.57	.....	58.7
1894.	1,271,295	96,781,706	2,903,451	50,481,152	.....	17.39	.....	52.2
1895.	1,366,040	148,328,131	4,449,844	45,608,775	.....	10.25	.....	30.8
62-66	3,466,453	368,510,596	11,055,317	226,313,447	146,440,897	13.24	61.4	39.7
67-70	3,159,527	299,536,000	8,986,080	226,880,600	180,568,526	20.09	75.7	60.3
71-74	2,813,180	275,887,700	8,276,631	175,224,281	158,157,918	19.11	63.5	57.3
75-78	3,782,355	320,763,250	9,622,898	187,011,629	179,204,292	18.62	58.3	55.9
79-82	4,263,363	349,311,414	10,479,342	206,492,180	.....	19.70	.....	59.1
83-86	4,815,347	396,266,687	11,888,001	189,752,599	.....	15.96	.....	47.9
87-90	5,121,220	374,970,000	11,249,100	201,783,610	.....	17.94	.....	53.8
91-94	4,985,012	390,183,038	11,705,491	216,407,009	.....	18.49	.....	55.5
62-66	3,466,453	368,510,596	11,055,317	226,313,447	146,440,897	13.24	61.4	39.7
67-73	5,282,928	508,712,700	15,261,381	357,448,891	298,696,080	19.57	70.3	58.7
74-80	6,443,534	581,600,900	17,448,297	324,108,034	311,675,071	17.85	55.7	53.6
81-87	8,346,355	631,483,451	18,944,504	356,438,564	.....	18.81	.....	56.4
88-94	8,867,187	685,112,068	20,553,361	365,556,419	.....	17.78	.....	53.3
62-94	32,406,457	2,775,428,685	83,262,860	1,629,865,355	1,478,807,031	17.76	58.8	53.3
67-94	28,940,004	2,406,918,089	72,207,543	1,403,551,908	1,332,366,134	18.45	58.3	55.4
67-78	9,755,062	896,186,950	26,885,609	589,116,510	517,930,736	19.26	65.7	57.8
79-86	9,078,710	745,578,101	22,367,343	396,244,779	.....	17.71	.....	53.1
87-94	10,106,232	765,153,038	22,954,591	418,190,619	.....	18.22	.....	54.7
67-78	9,755,062	896,186,950	26,885,609	589,116,510	517,930,736	19.26	58.8	57.8
79-82	4,263,363	349,311,414	10,479,342	206,492,180	.....	19.70	.....	59.1
83-94	14,921,579	1,161,419,725	34,842,592	607,943,218	.....	17.45	.....	52.3
67-80	11,726,462	1,090,322,600	32,709,678	681,556,925	610,371,151	18.66	62.5	56.0
81-94	17,213,542	1,316,595,489	39,497,865	721,994,983	.....	18.28	.....	54.8
76-78	2,941,894	229,391,250	6,881,688	146,192,059	142,663,093	20.73	63.7	62.2
93-95	3,858,546	343,419,650	10,302,590	153,812,280	.....	14.93	.....	44.8

TABLE X. (j).

An exhibit by years and certain periods of years of the acres of potatoes raised in the United States, their average yield per acre in bushels, together with their total farm or home value in dollars currency, and their average home or farm value per bushel and ton, gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	Yield Per Acre in Bushels	AVERAGE		
		Bushels.	Tons.			Value Per Bu. in Cents.		Per Ton in Dollars, Gold.
						Cur.	Gold.	
1862...	940,069	112,577,482	3,377,324	44,589,141	119.0	39.7	27.5	9.17
1863...	1,129,804	98,965,198	2,968,956	54,961,290	87.6	55.6	35.7	11.90
1864...	902,295	96,532,029	2,895,961	77,184,043	107.0	80.9	36.6	12.20
1865...	964,614	101,032,095	3,030,963	65,218,428	104.7	64.5	46.1	15.36
1866...	1,069,381	107,000,976	3,216,029	72,939,029	100.2	68.4	50.6	16.85
1867...	1,192,195	97,783,000	2,933,490	89,276,830	82.0	91.3	65.9	21.97
1868...	1,131,552	106,090,000	3,182,700	85,150,040	93.8	79.3	59.5	19.82
1869...	1,222,250	133,866,000	4,015,980	71,651,730	109.5	53.5	44.3	14.78
1870...	1,320,119	114,775,000	3,443,250	82,668,590	86.6	72.0	65.3	21.75
1871...	1,220,912	120,461,700	3,613,851	71,836,671	98.6	59.6	54.8	18.26
1872...	1,331,331	113,516,000	3,405,480	68,091,120	85.2	60.0	53.4	17.79
1873...	1,295,139	106,089,000	3,182,670	74,774,890	81.9	70.5	63.5	21.15
1874...	1,310,041	105,981,000	3,179,430	71,823,330	80.9	67.8	60.6	20.19
1875...	1,510,041	166,877,000	5,006,310	65,019,420	110.5	39.0	34.7	11.58
1876...	1,741,983	126,827,000	3,804,810	83,861,390	71.6	66.2	62.4	20.79
1877...	1,792,287	170,092,000	5,102,760	76,249,500	94.9	44.8	44.2	14.73
1878...	1,776,800	124,126,650	3,723,800	73,059,125	69.9	58.9	58.9	19.62
1879...	1,836,800	181,626,400	5,448,792	79,153,673	98.9	.....	43.6	14.52
1880...	1,842,510	167,659,570	5,029,787	81,062,214	91.0	.....	48.3	16.12
1881...	2,041,670	100,145,494	3,274,365	99,291,341	53.5	.....	91.0	30.33
1882...	2,171,636	170,972,508	5,129,175	95,304,844	78.7	.....	55.8	18.60
1883...	2,289,275	208,164,425	6,244,933	87,848,991	91.0	.....	42.2	14.07
1884...	2,220,980	190,642,000	5,719,260	75,524,290	86.0	.....	39.6	13.21
1885...	2,265,823	175,029,000	5,250,870	78,153,403	77.2	.....	44.7	14.89
1886...	2,287,136	168,051,000	5,041,530	78,441,940	73.6	.....	46.7	15.56
1887...	2,357,322	134,103,000	4,023,090	91,506,740	56.9	.....	68.2	22.74
1888...	2,533,280	202,365,000	6,070,950	81,413,589	78.9	.....	40.2	13.41
1889...	.....	.....	.....	.....	.....	.....	.....	.....
1890...	.....	.....	.....	.....	.....	.....	.....	.....
1891...	.....	.....	.....	.....	.....	.....	.....	.....
1892...	.....	.....	.....	.....	.....	.....	.....	.....
1893...	2,605,186	183,034,203	5,491,026	108,661,801	70.3	.....	59.4	19.80
1894...	2,737,973	170,787,338	5,123,620	91,526,787	62.4	.....	53.6	17.86
1895...	2,954,952	297,237,370	8,917,121	78,984,901	100.6	.....	26.6	8.86
1862-66	5,006,163	516,307,780	15,489,233	314,891,931	103.1	60.9	39.3	13.09
1867-70	4,866,116	452,514,000	13,575,420	328,747,190	92.9	72.7	57.9	19.29
1871-74	5,157,423	446,047,700	13,381,431	286,526,011	86.5	64.2	57.9	19.29
1875-78	6,821,111	587,922,650	17,637,680	298,189,435	86.2	50.7	48.5	16.18
1879-82	7,892,615	629,403,972	18,882,119	354,812,072	79.7	.....	56.3	18.79
1883-86	9,063,214	741,886,425	22,256,593	319,968,624	81.9	.....	43.1	14.38
1887-90	9,781,204	672,936,000	20,188,080	345,840,658	68.8	.....	51.4	17.13
1891-94	10,686,318	707,643,082	21,229,292	400,377,176	66.2	.....	56.6	18.86
1862-66	5,006,163	516,307,780	15,489,233	314,891,931	103.1	60.9	39.3	13.09
1867-73	8,713,498	792,580,709	23,777,421	543,449,871	90.9	68.6	57.5	19.17
1874-80	11,810,462	1,043,189,620	31,295,689	530,228,652	88.3	50.8	48.9	16.29
1881-87	15,633,841	1,156,107,427	34,683,223	606,071,549	73.9	.....	52.3	17.44
1888-94	18,110,200	1,246,476,082	37,394,282	654,711,094	68.8	.....	52.5	17.51
1862-94	59,274,164	4,754,661,609	142,639,848	2,619,353,097	80.2	55.7	51.1	17.03
1867-94	54,268,001	4,238,353,829	127,150,615	2,334,461,166	78.1	55.1	52.5	17.51
1867-78	16,844,650	1,486,484,350	44,594,531	913,462,636	88.2	54.7	54.2	18.06
1879-86	16,955,829	1,371,290,397	41,138,712	674,780,696	80.9	.....	49.2	16.40
1887-94	20,467,522	1,380,579,082	41,417,372	746,217,834	67.4	.....	54.1	18.02
1867-78	16,844,650	1,486,484,350	44,594,531	913,462,636	88.2	54.7	54.2	18.06
1879-82	7,892,615	629,403,972	18,882,119	354,812,072	79.7	.....	56.3	18.79
1883-94	29,530,736	2,122,465,507	63,673,965	1,066,186,458	71.9	.....	50.2	16.74
1867-80	20,523,960	1,835,770,320	55,073,110	1,073,678,523	89.5	58.4	52.6	17.53
1881-94	33,744,041	2,402,583,509	72,077,505	1,260,782,643	71.2	.....	52.4	17.48
1876-78	5,311,070	419,045,650	12,631,370	233,170,015	78.9	55.6	54.2	18.08
1893-95	8,298,111	651,058,911	19,531,767	279,173,489	78.5	.....	43.0	14.34



TABLE X. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per bushel and ton of the potatoes raised in the ten Mississippi Valley states, in the Exterior States, including all excepting the ten Mississippi Valley states, and in the nation, together with the weight in tons and its value in dollars gold of the per capita product of potatoes in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER BUSHEL IN CENTS.			GOLD VALUES PER TON IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862...	62	45	52	25.5	28.4	27.5	8.51	9.47	9.17	.....	.....
1863...	91	56	67	37.7	34.9	35.7	12.55	11.63	11.90	.....	.....
1864...	106	56	68	43.7	34.7	36.6	14.56	11.57	12.20	.....	.....
1865...	91	80	86	37.6	50.1	46.1	12.54	16.69	15.36	.....	.....
1866...	133	81	95	50.7	50.5	50.6	16.91	16.83	16.85	.....	.....
1867...	155	106	123	65.1	66.3	65.9	21.71	22.10	21.97	.081	1.78
1868...	130	99	111	53.5	62.1	59.5	17.84	20.69	19.82	.086	1.71
1869...	91	77	83	37.5	47.9	44.3	12.49	15.98	14.78	.106	1.57
1870...	147	109	122	60.5	68.1	65.3	20.16	22.70	21.75	.089	1.94
1871...	144	83	102	59.4	52.0	54.8	19.80	17.34	18.26	.091	1.67
1872...	100	100	100	41.2	62.4	53.4	13.74	20.81	17.79	.084	1.49
1873...	189	89	119	77.7	55.7	63.5	25.91	18.56	21.15	.076	1.61
1874...	149	96	113	61.5	60.0	60.6	20.50	20.00	20.19	.074	1.50
1875...	67	65	65	27.7	40.9	34.7	9.22	13.63	11.58	.114	1.32
1876...	132	100	117	54.4	68.6	62.4	18.14	22.86	20.79	.084	1.75
1877...	97	76	83	39.9	47.3	44.2	13.30	15.77	14.73	.110	1.62
1878...	100	122	110	41.4	76.5	58.9	13.79	25.49	19.62	.078	1.53
1879...	102	72	82	41.8	44.9	43.6	13.95	14.97	14.52	.111	1.62
1880...	110	81	91	45.6	50.7	48.3	15.19	16.90	16.12	.100	1.62
1881...	231	140	170	95.2	87.8	91.0	31.72	29.25	30.33	.064	1.94
1882...	111	103	105	45.8	64.0	55.8	15.28	21.34	18.60	.098	1.82
1883...	88	76	79	36.2	47.3	42.2	12.06	15.76	14.07	.116	1.64
1884...	78	74	74	32.3	46.1	39.6	10.76	15.36	13.21	.104	1.38
1885...	98	78	84	40.5	49.0	44.7	13.50	16.34	14.89	.094	1.39
1886...	104	79	87	42.8	49.6	46.7	14.28	16.53	15.76	.088	1.37
1887...	174	105	128	71.9	65.8	68.2	23.97	21.92	22.74	.039	1.56
1888...	84	72	75	34.9	44.9	40.2	11.64	14.97	13.41	.101	1.36
1889	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893...	146	94	111	60.1	58.7	59.4	20.04	19.57	19.80	.082	1.62
1894...	135	93	100	55.5	52.2	53.6	18.49	17.39	17.86	.075	1.34
1895...	54	49	49	22.5	30.8	26.6	7.47	10.25	8.86	.128	1.13
1862-66.	93	63	74	38.1	39.7	39.3	12.71	13.24	13.09	.....	.....
1867-70.	129	97	108	53.1	60.3	57.9	17.70	20.09	19.29	.091	1.75
1871-74.	142	92	108	58.8	57.3	57.9	19.59	19.11	19.29	.081	1.57
1875-78.	96	89	91	39.7	55.9	48.5	13.24	18.62	16.18	.096	1.56
1879-82.	.....	.....	106	53.0	59.1	56.3	17.65	19.70	18.79	.093	1.75
1883-86.	.....	.....	81	37.7	47.9	43.1	12.56	15.96	14.38	.100	1.44
1887-90.	.....	.....	96	48.3	53.8	51.4	16.11	17.94	17.13	.083	1.43
1891-94.	.....	.....	105	58.0	55.5	56.6	19.32	18.49	18.86	.080	1.51
1862-66.	93	63	74	38.1	39.7	39.3	12.71	13.24	13.09	.....	.....
1867-73.	134	94	108	55.3	58.7	57.5	18.44	19.57	19.17	.088	1.68
1874-80.	104	86	92	42.9	53.6	48.9	14.30	17.85	16.29	.096	1.87
1881-87.	115	90	99	47.6	56.4	52.3	15.86	18.81	17.44	.090	1.58
1888-94.	125	86	99	51.5	53.3	52.5	17.17	17.78	17.51	.083	1.46
1862-94.	116	86	96	48.0	53.3	51.1	16.00	17.76	17.03	.....	.....
1867-94.	118	90	98	48.8	55.4	52.5	16.27	18.45	17.51	.089	1.55
1867-78.	118	92	116	48.7	57.8	54.2	16.22	19.26	18.06	.090	1.62
1879-86.	104	85	92	44.5	53.1	49.2	14.34	17.71	16.40	.097	1.50
1887-94.	136	87	114	53.2	54.7	54.1	17.76	18.22	18.02	.082	1.47
1867-78.	118	92	102	48.7	57.8	54.2	16.22	19.26	18.06	.090	1.62
1879-82.	128	95	106	53.0	59.1	56.3	17.65	19.70	18.79	.093	1.75
1883-94.	116	84	94	47.7	52.3	50.2	15.89	17.45	16.74	.087	1.46
1867-80.	116	90	98	47.6	56.0	52.6	15.88	18.66	17.53	.092	1.62
1881-94.	120	88	98	49.6	54.8	52.4	16.54	18.28	17.48	.087	1.81
1876-78.	108	100	102	44.6	62.2	54.2	14.88	20.73	18.08	.091	1.61
1893-95.	99	72	81	40.7	44.8	43.0	13.58	14.93	14.34	.096	1.36



## CHAPTER XI.

## HAY.

## A MARKED ADVANCE IN AVERAGE FARM GOLD VALUES.

The hay crop of the United States is the largest single crop in weight and second only to corn in value. In the thirty-three years ending with 1894 the total weight of the hay crop reported by the United States Department of Agriculture was 1,172,534,891 tons. Its home currency value was \$12,093,858,891. This was 37.26 per cent of the total product of the nine crops, corn, oats, wheat, rye, barley, buckwheat, hay, potatoes, and tobacco, the only crops produced in all sections of the country and regularly reported to the Department of Agriculture. The value of the hay crop for the farmer constituted 22.69 per cent of the total values of all these nine crops in thirty-three years. This importance of the hay crop makes the marked and continuous rise in the average farm gold value of hay in the United States, shown in the accompanying tables, a most significant fact in any study that can be made of the modern price movement in agricultural products. The simple average gold farm value of hay showed, when comparing the years 1888 to 1894 with 1862 to 1866, an increase in the nation in every group of states, with the exception of one, as may be seen in the following exhibit:

YEARS.	GOLD FARM PRICES, PER TON.				
	Nation.	Ten States.	Exterior States.	Seven States.	Seventeen States.
1862-66 .....	\$8.70	\$6.85	\$10.08	\$14.89	\$8.21
1888-94 .....	8.80	7.41	10.32	10.71	8.36

The decline in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, shown in the foregoing exhibit and in the accompanying tables, is apparent and

not real. The corrected values for the same group show as marked an advance as the others. The reason for this apparent decline in hay farm value in the group of seven states is not difficult to ascertain. In this group of states the figures of New York and Pennsylvania only are reported by the Department of Agriculture for the whole period of five years. California is only reported for 1862. Georgia, Texas, and Virginia are reported only for 1867, and Kentucky for three years. The simple average is, therefore, the average of the high price year 1866, and not in reality that of the five years, 1862 to 1866. The corrected average values for this report and the index numbers calculated according to the relative importance of the hay crop in the several states and periods correct this error of the simple averages, and show the actual price movement for hay in the country. This was for all the groups decidedly upward, as may be seen by the following comparison of the index numbers for the corrected values and those calculated according to relative importance.

YEARS	INDEX NUMBERS.					
	To Corrected Average Values of This Report.			Calculated According to Relative Importance.		
	Ten States.	Seven States.	Seventeen States.	Ten States.	Seven States.	Seventeen States.
1862-66.....	78	57	67	72	54	62
1867-73.....	99	82	90	96	80	89
1874-80.....	87	66	73	87	68	74
1881-87.....	92	69	80	93	68	80
1883-94.....	96	64	78	96	64	79

#### THE SIGNIFICANCE OF DIFFERENT SETS OF INDEX NUMBERS.

It should be noticed that the index numbers calculated according to relative importance of the hay crop in the several states and periods in each group record a greater advance from the earlier to the later periods than do the ones with which they are compared. The method used in calculating those index numbers best allows for the small relative importance of the hay crop in the States of Georgia, Virginia, Texas, Nebraska, and Kansas in the first period. The corrected average values with their index numbers, while allowing somewhat for the effect upon averages of the small reported yield and high prices of this and other crops in this earlier period, do not give as correct an exhibit of the effect upon the farmers as a whole of the varying price as do the numbers calculated by the other method. Taking these index numbers calculated according to relative importance as the measure of the price movement of hay,

it is seen, that, in thirty-three years, the farm gold values of hay in all the great groups of states advanced from twenty to thirty per cent, on an average. It should be noted, however, that there was a great elevation in the hay price in all the groups of states in the period including and immediately following 1867. When comparing that period with any that follows there was for all the groups and for the nation, with the exception of the ten Mississippi Valley states, a decline in average price.

#### AMOUNT AND VALUE OF THE PER CAPITA HAY PRODUCT.

The average yield per acre of hay, as reported by the Department of Agriculture, does not show the great decline found in the potato and in some other crops. The change in reported averages is, however, a decrease, as is the corresponding change with all other crops. Allowance must therefore be made for the change in using the figures showing for the nation the weight and value of the reported per capita product of hay, as given in Table (k). These corrected, the exhibit for hay is as follows for the nation:

YEARS.	Average Yield Per Acre.	Average Gold Value Per Ton.	PER CAPITA PRODUCT.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	1.24	\$11.73	.643	\$7.55	.627	\$7.35
1874-80.....	1.28	9.62	.685	6.59	.653	6.28
1881-87.....	1.18	9.18	.771	7.08	.795	7.30
1888-94.....	1.21	8.80	.842	7.38	.842	7.47

The average yield per acre was for the twenty-eight years 1.22 tons. The weight and value of the corrected per capita product as given above are obtained by adding to or subtracting from the first set of figures an amount that corresponds to the percentage which the reported yield per acre is above or below the average for the whole period. The corrected average value of the per capita product is here found, as has been the case with the other crops, with two or three exceptions, a fairly stable amount. This amount in the case of hay, for the period 1874 to 1880, fell about one per cent below the average for twenty-eight years, and in 1888 to 1894 was a little more than one per cent above that average. With no greater variation than this, it can be said that hay prices, like those of all other agricultural products, tend to vary inversely as the quantity produced, making the value of a great and small product always practically the same.

TABLE XI. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in tons of the hay raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total home or farm value of the same in currency and its average home or farm value per ton in gold and currency, and simple index numbers showing the percentage which the average gold value each year and period was of the average gold value in the same states for the year 1872.

## OHIO.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Percent-ages.	Index Nos.
			Cur'ney	Gold.		
1862-66.....	8,958,224	103,378,446	11.54	7.36	a13.50	58
1867-70.....	8,172,000	98,343,540	12.03	8.69	b37.35	68
1871-74.....	7,018,600	102,873,522	14.66	13.58	.....	106
1875-78.....	8,982,080	77,715,162	8.65	8.54	.....	66
1879-82.....	9,672,813	108,538,394	.....	11.22	.....	88
1883-86.....	12,260,499	121,846,978	.....	9.94	.....	78
1887-90.....	12,097,660	129,388,336	.....	10.70	.....	84
1891-94.....	12,486,670	116,152,764	.....	9.30	.....	73
1862-94.....	79,648,546	858,237,142	10.77	9.85	.....	77
1862-66.....	8,958,224	103,378,446	11.54	7.36	.....	58
1867-73.....	13,535,000	171,714,270	12.69	10.53	.....	82
1874-80.....	15,304,080	160,252,818	10.47	10.02	.....	78
1881-87.....	20,355,676	209,010,339	.....	10.27	.....	80
1888-94.....	21,495,566	213,881,269	.....	9.95	.....	78
1876-78.....	7,082,080	53,072,162	7.49	7.30	.....	57
1893-95.....	7,289,399	71,424,159	.....	9.80	.....	77
1862.....	2,073,398	14,513,786	7.09	4.82	.....	38
1872.....	1,730,000	24,963,900	14.43	12.80	.....	100
1895.....	1,046,064	13,347,777	.....	12.76	.....	100

## INDIANA.

1862-66.....	4,828,156	54,948,535	11.38	7.26	a8.84	65
1867-70.....	4,660,000	52,007,360	11.16	8.85	b28.07	80
1871-74.....	3,382,200	42,782,788	12.65	11.35	.....	102
1875-78.....	4,930,000	38,925,800	7.90	7.49	.....	67
1879-82.....	5,917,287	60,766,300	.....	10.27	.....	92
1883-86.....	8,755,155	64,548,200	.....	7.37	.....	66
1879-90.....	8,808,200	92,258,104	.....	10.47	.....	94
1891-94.....	10,853,168	91,353,822	.....	8.42	.....	76
1862-94.....	52,134,166	497,590,909	9.54	8.83	.....	79
1862-66.....	4,828,156	54,948,535	11.38	7.26	.....	65
1867-73.....	7,238,300	83,599,870	11.55	9.65	.....	87
1874-80.....	8,626,860	79,264,424	9.19	8.79	.....	79
1881-87.....	14,371,082	123,300,206	.....	8.58	.....	77
1888-94.....	17,069,768	156,477,874	.....	9.17	.....	83
1876-78.....	3,880,000	26,861,300	6.92	6.75	.....	61
1893-95.....	6,382,309	57,174,283	.....	8.96	.....	81
1862.....	847,006	5,929,672	7.00	4.82	.....	43
1872.....	859,000	10,763,270	12.53	11.11	.....	100
1895.....	955,725	11,497,372	.....	12.03	.....	108



TABLE XI. (a)—Continued.

## ILLINOIS.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Percent- ages.	Index Nos.
			Currency	Gold.		
1862.....	2,292,831	18,342,648	8.00	5.51	.....	66
1863.....	1,742,552	20,039,348	11.50	7.39	.....	88
1864.....	2,166,725	33,215,894	15.33	7.10	.....	85
1865.....	2,600,070	24,180,651	9.30	6.64	.....	79
1866.....	2,340,063	21,692,384	9.27	6.89	.....	82
1867.....	2,667,000	25,949,910	9.73	7.03	.....	84
1868.....	2,667,000	26,670,000	10.00	7.37	.....	88
1869.....	2,800,000	27,636,000	9.87	8.13	.....	97
1870.....	1,895,000	20,352,300	10.74	9.70	.....	116
1871.....	1,838,600	18,471,900	10.05	9.22	.....	110
1872.....	1,929,000	18,267,630	9.47	8.40	.....	100
1873.....	2,350,000	20,562,500	8.75	7.85	.....	93
1874.....	2,232,500	23,418,925	10.49	9.33	.....	111
1875.....	3,050,000	29,676,500	9.73	8.62	.....	103
1876.....	3,936,000	23,380,000	6.68	6.29	.....	75
1877.....	3,936,000	23,104,320	5.87	5.78	.....	69
1878.....	3,531,300	18,150,882	.....	5.14	.....	61
1879.....	2,648,500	24,869,415	.....	9.39	.....	112
1880.....	2,595,530	21,672,675	.....	8.35	.....	100
1881.....	3,214,713	36,647,728	.....	11.40	.....	136
1882.....	3,439,743	30,269,758	.....	8.80	.....	105
1883.....	4,270,062	30,957,950	.....	7.25	.....	86
1884.....	4,025,000	25,116,000	.....	6.24	.....	74
1885.....	4,298,125	31,591,219	.....	7.35	.....	88
1886.....	4,513,031	28,883,398	.....	6.40	.....	76
1887.....	2,724,879	28,039,005	.....	10.29	.....	123
1888.....	4,625,482	35,893,740	.....	7.76	.....	92
1889.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....
1893.....	3,273,874	20,006,524	.....	8.86	.....	106
1894.....	2,745,184	22,867,383	.....	8.33	.....	99
1895.....	1,319,133	13,521,113	.....	10.25	.....	122
1862-66.....	11,142,241	117,470,925	10.54	6.67	a16.83	79
1867-70.....	10,029,000	100,608,210	10.03	7.93	b27.99	95
1871-74.....	8,349,500	80,720,955	9.67	8.67	.....	103
1875-78.....	14,017,300	94,311,702	6.73	6.36	.....	76
1879-82.....	11,898,486	113,459,556	.....	9.54	.....	114
1883-86.....	17,106,218	116,548,567	.....	6.81	.....	81
1887-90.....	14,700,722	127,865,490	.....	8.70	.....	104
1891-94.....	12,038,116	103,747,814	.....	8.62	.....	103
1862-94.....	99,281,583	854,733,219	8.61	7.83	.....	93
1862-66.....	11,142,241	117,470,925	10.54	6.67	.....	79
1867-70.....	16,146,000	157,910,240	9.78	8.12	.....	97
1874-80.....	21,493,830	164,272,717	7.64	7.28	.....	87
1881-87.....	26,485,553	211,505,038	.....	7.99	.....	95
1888-94.....	24,013,959	203,574,299	.....	8.48	.....	101
1876-78.....	10,967,300	64,635,202	5.89	5.74	.....	68
1893-95.....	7,338,191	65,395,020	.....	8.91	.....	106
1862.....	2,292,831	18,342,648	8.00	5.51	.....	66
1872.....	1,929,000	18,267,630	9.47	8.40	.....	100
1895.....	1,319,133	13,521,113	.....	10.25	.....	122

TABLE XI. (a)—*Continued.*

## MICHIGAN.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Percent- ages.	Index Nos.
			Cur'ney	Gold.		
1862-66.....	5,341,620	67,429,076	12.63	8.06	a 7.74	76
1867-70.....	5,872,000	80,602,020	13.73	10.92	b 43.49	103
1871-74.....	3,965,190	59,280,860	14.95	13.56	.....	128
1875-78.....	4,910,420	51,225,516	10.43	9.94	.....	94
1879-82.....	4,390,319	54,535,640	.....	12.42	.....	117
1883-86.....	6,658,783	65,163,918	.....	9.79	.....	92
1887-90.....	6,531,044	71,771,528	.....	10.99	.....	104
1891-94.....	7,825,224	71,188,644	.....	9.10	.....	86
1862-94.....	45,494,510	521,197,202	11.46	10.37	.....	98
1862-66.....	5,341,620	67,429,076	12.63	8.06	.....	76
1867-73.....	8,920,500	125,583,920	14.08	11.74	.....	111
1874-80.....	7,436,532	85,531,762	11.50	10.98	.....	104
1881-87.....	11,159,795	118,270,486	.....	10.60	.....	100
1888-94.....	12,636,063	124,381,958	.....	9.84	.....	93
1876-78.....	3,690,420	33,535,516	9.09	8.86	.....	84
1893-95.....	4,633,580	45,031,793	.....	9.72	.....	92
1862.....	1,135,362	9,082,896	8.00	5.51	.....	52
1872.....	1,050,000	12,873,000	12.17	10.60	.....	100
1895.....	720,968	9,437,471	.....	13.09	.....	123

## WISCONSIN.

1862-66.....	4,981,834	51,886,065	10.42	6.65	a 9.36	76
1867-70.....	5,277,500	57,320,590	10.76	8.53	b 44.49	98
1871-74.....	5,277,500	52,767,225	10.00	8.97	.....	103
1875-78.....	8,698,000	44,028,500	5.06	4.80	.....	55
1879-82.....	5,984,438	52,054,063	.....	8.70	.....	100
1883-86.....	8,253,244	59,146,132	.....	7.17	.....	82
1887-90.....	7,130,480	60,451,598	.....	8.48	.....	97
1891-94.....	9,592,398	72,846,022	.....	7.59	.....	87
1862-94.....	55,244,894	450,500,195	8.15	7.46	.....	86
1862-66.....	4,981,834	51,886,065	10.42	6.65	.....	76
1867-73.....	9,440,000	98,361,300	10.42	8.71	.....	100
1874-80.....	12,072,180	76,108,623	6.30	6.03	.....	69
1881-87.....	13,427,851	105,265,032	.....	7.84	.....	90
1888-94.....	15,323,029	118,879,175	.....	7.76	.....	89
1876-78.....	7,278,000	30,495,900	4.19	4.09	.....	47
1893-95.....	6,166,325	49,617,324	.....	8.05	.....	92
1862.....	1,067,248	8,537,984	8.00	5.51	.....	63
1872.....	1,398,000	13,728,360	9.82	8.71	.....	100
1895.....	1,370,126	13,194,313	.....	9.63	.....	115

TABLE XI. (a)—*Continued.*

## MISSOURI.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Percent- ages.	Index Nos.
			Cum'ney	Gold.		
1862-66.....	2,415,293	29,006,442	12.01	7.66	a6.91	89
1867-70.....	2,614,000	29,924,540	11.45	9.08	b22.50	105
1871-74.....	2,332,900	24,431,195	10.47	9.39	.....	109
1875-78.....	4,120,000	31,352,600	7.61	7.22	.....	84
1879-82.....	4,462,138	42,948,328	.....	9.63	.....	112
1883-86.....	6,063,771	41,009,637	.....	6.76	.....	78
1887-90.....	7,139,288	55,549,316	.....	7.78	.....	90
1891-94.....	11,607,430	85,074,160	.....	7.33	.....	85
1862-94.....	40,754,820	339,296,218	8.33	7.81	.....	90
1862-66.....	2,415,293	29,006,442	12.01	7.66	.....	89
1867-73.....	4,358,000	47,259,490	10.84	9.04	.....	105
1874-80.....	6,909,670	58,984,030	8.54	8.17	.....	95
1881-87.....	10,092,289	77,931,082	.....	7.72	.....	89
1888-94.....	16,979,568	126,115,174	.....	7.43	.....	86
1876-78.....	3,420,000	24,156,600	7.06	6.88	.....	80
1893-95.....	8,529,500	61,072,418	.....	7.16	.....	83
1862.....	467,915	3,743,320	8.00	5.51	.....	64
1872.....	601,000	5,847,730	9.73	8.63	.....	100
1895.....	2,725,785	18,535,338	.....	6.80	.....	79

## IOWA.

1862.....	848,712	6,789,696	8.00	5.52	.....	102
1863.....	594,099	4,158,693	7.00	4.50	.....	83
1864.....	814,764	7,748,406	9.51	4.40	.....	81
1865.....	1,018,455	7,590,737	7.45	5.32	.....	98
1866.....	1,161,039	7,198,442	6.20	4.61	.....	85
1867.....	1,250,000	7,212,500	5.77	4.16	.....	77
1867.....	1,400,000	9,100,000	6.50	4.79	.....	89
1868.....	1,650,000	12,705,000	7.70	6.34	.....	117
1869.....	1,690,000	12,320,000	7.70	6.95	.....	128
1870.....	1,632,000	9,938,880	6.09	5.58	.....	103
1871.....	1,664,000	10,100,480	6.07	5.38	.....	100
1872.....	1,747,200	10,920,000	6.25	6.17	.....	114
1873.....	1,747,200	11,304,384	6.47	5.75	.....	106
1874.....	1,920,000	11,097,600	5.78	5.12	.....	95
1875.....	1,950,000	9,750,000	5.00	4.71	.....	87
1876.....	2,550,000	12,112,500	4.75	4.68	.....	87
1877.....	3,564,000	12,830,400	.....	3.60	.....	67
1878.....	3,564,000	16,180,560	.....	4.54	.....	84
1879.....	2,851,200	17,192,736	.....	6.03	.....	111
1880.....	3,541,662	23,481,219	.....	6.63	.....	123
1881.....	3,860,412	20,267,163	.....	5.25	.....	97
1882.....	4,372,849	19,677,821	.....	4.50	.....	83
1883.....	5,062,500	21,262,500	.....	4.20	.....	78
1884.....	4,355,625	21,124,781	.....	4.85	.....	90
1885.....	4,137,844	20,689,220	.....	5.00	.....	92
1886.....	3,030,338	22,524,088	.....	7.36	.....	136
1887.....	5,272,783	24,360,257	.....	4.62	.....	85
1888.....	.....	.....	.....	.....	.....	.....
1889.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....
1893.....	8,622,589	53,115,148	.....	6.16	.....	114
1894.....	3,426,115	25,318,990	.....	7.39	.....	137
1895.....	4,612,583	29,751,141	.....	6.47	.....	120

TABLE XI. (a)—Continued.

IOWA—Continued.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Percent- ages.	Index Nos.
			Currency	Gold.		
1862-66.....	4,437,069	33,485,974	7.51	4.89	a16.88	90
1867-70.....	5,900,000	41,337,500	7.01	5.68	b32.85	105
1871-74.....	6,790,400	42,263,744	6.22	5.73	.....	106
1875-78.....	9,984,000	45,790,500	4.59	4.29	.....	79
1879-82.....	13,817,274	77,121,678	.....	5.58	.....	103
1883-86.....	17,928,818	82,754,322	.....	4.62	.....	85
1887-90.....	16,666,242	93,768,690	.....	5.63	.....	104
1891-94.....	24,097,408	156,868,276	.....	6.51	.....	120
1862-94.....	99,621,211	573,390,684	5.76	5.50	.....	102
1862-66.....	4,437,069	33,485,974	7.51	4.89	.....	90
1867-73.....	10,943,200	72,296,860	5.69	5.79	.....	107
1874-80.....	18,146,400	90,468,180	4.99	4.76	.....	88
1881-87.....	28,391,230	149,026,792	.....	5.25	.....	97
1888-94.....	37,703,312	228,112,878	.....	6.05	.....	112
1876-78.....	8,064,000	34,692,900	4.30	4.19	.....	77
1893-95.....	16,661,287	108,185,279	.....	6.49	.....	120
1862.....	848,712	6,789,696	8.00	5.51	.....	102
1872.....	1,664,000	10,100,480	6.07	5.38	.....	100
1896.....	4,612,583	29,751,141	.....	6.45	.....	119

## MINNESOTA.

1862-66.....	1,220,052	8,868,145	7.27	4.64	a 6.82	92
1867-70.....	2,554,000	17,295,280	6.77	5.33	b41.05	106
1871-74.....	3,259,900	18,436,070	5.65	5.04	.....	100
1875-78.....	4,596,920	23,031,672	5.01	4.75	.....	94
1879-82.....	6,521,992	38,492,808	.....	5.90	.....	117
1883-86.....	7,841,888	35,585,946	.....	4.54	.....	90
1887-90.....	5,411,560	25,123,072	.....	4.64	.....	92
1891-94.....	8,852,798	42,843,944	.....	4.84	.....	96
1862-94.....	40,259,110	209,676,937	5.21	4.96	.....	99
1862-66.....	1,220,052	8,868,145	7.27	4.64	.....	92
1867-73.....	4,996,100	31,560,510	6.32	5.30	.....	105
1874-80.....	8,602,322	44,299,590	5.15	4.94	.....	98
1881-87.....	11,769,558	60,565,027	.....	5.15	.....	102
1888-94.....	13,671,678	64,383,605	.....	4.71	.....	94
1876-78.....	3,739,920	18,532,422	4.96	4.84	.....	96
1893-95.....	6,468,167	31,875,824	.....	4.93	.....	98
1862.....	366,603	2,199,618	6.00	4.13	.....	82
1872.....	803,000	4,553,010	5.67	5.03	.....	100
1895.....	2,041,768	10,453,852	.....	5.12	.....	102



TABLE XI. (a)—Continued.

## NEBRASKA.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Percent- ages.	Index Nos.
			Cur'ney	Gold.		
1862-66.....	77,536	491,863	6.35	3.87	a 4.44	114
1867-70.....	325,700	1,751,980	5.38	4.21	b26.94	125
1871-74.....	739,900	3,272,900	4.44	3.96	.....	117
1875-78.....	1,825,400	6,332,966	3.47	3.27	.....	97
1879-82.....	2,827,305	10,381,004	.....	3.67	.....	109
1883-86.....	7,676,276	27,189,548	.....	3.54	.....	105
1887-90.....	5,302,080	21,044,016	.....	3.97	.....	117
1891-94.....	7,428,396	41,236,696	.....	5.55	.....	164
1862-94.....	26,199,593	111,700,973	4.26	4.24	.....	125
1862-66.....	77,536	491,863	6.35	3.87	.....	114
1867-73.....	882,100	4,169,310	4.73	3.99	.....	115
1874-80.....	3,190,864	11,230,504	3.52	3.38	.....	100
1881-87.....	10,528,217	38,645,192	.....	3.67	.....	109
1888-94.....	11,520,876	57,164,104	.....	4.96	.....	147
1876-78.....	1,475,400	5,055,466	3.43	3.34	.....	99
1893-95.....	5,525,652	27,067,124	.....	4.90	.....	145
1862.....	189,000	720,090	3.81	3.38	.....	100
1872.....	1,811,454	6,448,776	.....	3.56	.....	105

## KANSAS.

1862-66.....	463,732	3,666,090	7.91	5.05	a 8.71	162
1867-70.....	1,059,000	6,971,560	6.58	5.22	b33.39	167
1871-74.....	2,922,000	12,061,190	4.13	3.77	.....	121
1875-78.....	4,509,000	16,197,600	3.59	3.45	.....	111
1879-82.....	6,103,441	27,794,366	.....	4.55	.....	146
1883-86.....	15,663,000	64,208,650	.....	4.10	.....	131
1887-90.....	6,832,980	33,437,844	.....	4.89	.....	157
1891-94.....	13,839,988	67,760,544	.....	4.90	.....	157
1862-94.....	51,393,141	232,097,844	4.52	4.43	.....	142
1862-66.....	463,732	3,666,090	7.91	5.05	.....	162
1867-73.....	3,451,000	16,986,950	4.92	4.58	.....	147
1874-80.....	7,947,836	31,077,664	3.91	3.69	.....	118
1881-87.....	20,338,645	87,758,784	.....	4.31	.....	138
1888-94.....	19,191,928	92,608,356	.....	4.83	.....	155
1876-78.....	3,549,000	13,279,200	3.74	3.65	.....	117
1893-95.....	11,101,283	47,511,274	.....	4.27	.....	137
1862.....	63,515	381,090	6.00	4.13	.....	132
1872.....	728,000	2,831,920	3.89	3.12	.....	100
1895.....	4,181,289	13,631,002	.....	3.26	.....	104

TABLE XI. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of hay grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of hay in said states in tons, and its total home or farm value in dollars, currency and gold, and its average home or farm values per ton in gold and currency.

YEARS.	Total Area in Acres.	Total Product in Tons.	TOTAL VALUE IN DOLLARS.		VALUE PER TON IN DOLLARS.	
			Currency.	Gold.	Cur.	Gold.
1862...	5,731,173	9,162,680	69,520,710	47,899,770	7.59	5.23
1863...	5,279,527	6,957,407	82,574,552	53,095,437	11.87	7.63
1864...	5,612,322	7,746,740	122,974,397	56,937,146	15.87	7.35
1865...	6,288,004	10,267,115	96,362,130	68,802,561	9.39	6.70
1866...	6,847,542	9,731,615	99,199,772	73,705,431	10.19	7.57
1867...	7,594,581	11,493,000	124,388,670	89,808,620	10.82	7.81
1868...	8,569,982	11,511,700	126,489,860	93,223,027	10.99	8.10
1869...	7,851,297	12,293,000	124,751,100	102,794,906	10.15	8.36
1870...	8,488,918	11,215,000	110,532,950	99,811,254	9.86	8.90
1871...	7,676,242	10,595,000	106,664,560	97,811,402	10.07	9.23
1872...	8,892,562	10,951,000	104,649,390	92,824,010	9.60	8.47
1873...	9,628,528	11,901,500	111,966,240	100,433,717	9.41	8.44
1874...	9,583,730	10,637,500	115,610,259	102,777,520	10.87	9.66
1875...	10,386,578	13,427,000	124,595,350	110,391,480	9.28	8.22
1876...	10,875,056	17,512,000	102,239,450	96,207,322	5.84	5.49
1877...	11,534,814	15,896,000	97,095,570	95,639,136	6.11	6.02
1878...	12,456,000	19,738,120	104,981,648	104,981,648	5.32	5.32
1879...	12,539,676	16,898,800	127,361,121	.....	.....	7.54
1880...	11,112,114	15,621,154	129,606,914	.....	.....	8.30
1881...	15,809,862	18,602,367	180,431,065	.....	.....	9.70
1882...	16,787,573	20,473,172	148,693,037	.....	.....	7.26
1883...	19,748,330	27,515,834	171,413,971	.....	.....	6.23
1884...	22,366,625	30,014,971	175,245,066	.....	.....	5.84
1885...	22,394,352	26,947,845	175,083,653	.....	.....	6.50
1886...	19,350,767	23,729,002	156,259,208	.....	.....	6.59
1887...	19,441,207	19,636,705	174,151,988	.....	.....	8.87
1888...	19,885,673	25,673,423	181,177,009	.....	.....	7.06
1889...	.....	.....	.....	.....	.....	.....
1890...	.....	.....	.....	.....	.....	.....
1891...	.....	.....	.....	.....	.....	.....
1892...	.....	.....	.....	.....	.....	.....
1893...	25,641,831	35,663,981	247,031,762	.....	.....	6.93
1894...	24,370,669	32,646,817	177,504,581	.....	.....	7.51
1895...	21,542,007	20,784,895	139,818,155	.....	.....	6.73
1862-66	29,758,568	43,865,557	470,631,561	300,440,345	10.73	6.85
1867-70	32,504,778	46,512,700	486,162,580	385,637,807	10.46	8.29
1871-74	35,781,062	44,085,000	438,890,449	393,846,649	9.97	8.94
1875-78	45,252,448	66,573,120	428,912,018	407,219,586	6.44	6.12
1879-82	56,249,225	71,595,493	586,092,137	.....	.....	8.19
1883-86	83,860,074	108,207,652	678,001,898	.....	.....	6.27
1887-90	78,653,760	90,620,256	710,657,994	.....	.....	7.84
1891-94	100,025,000	118,621,596	849,072,686	.....	.....	7.16
1862-66	29,758,568	43,865,557	470,631,561	300,440,345	10.73	6.85
1867-73	58,702,110	79,960,200	809,442,770	676,706,936	10.13	8.46
1874-80	78,487,968	109,730,574	801,490,312	766,965,141	7.30	6.99
1881-87	135,898,716	166,919,896	1,181,277,988	.....	.....	7.08
1888-94	159,237,553	189,605,147	1,385,578,692	.....	.....	7.41
1862-94	462,084,915	590,081,374	4,648,421,323	4,310,969,102	7.88	7.31
1867-94	432,326,347	546,215,817	4,177,789,762	4,010,528,757	7.65	7.34
1867-78	113,538,288	157,170,820	1,353,965,047	1,186,704,042	8.62	7.55
1879-86	140,109,299	179,803,145	1,264,094,035	.....	.....	7.03
1887-94	178,678,760	209,241,852	1,559,730,680	.....	.....	7.45
1867-78	113,538,288	157,170,820	1,353,965,047	1,186,704,042	7.77	7.55
1879-82	56,249,225	71,595,493	586,092,137	.....	.....	8.19
1883-94	262,538,834	317,449,504	2,237,732,578	.....	.....	7.05
1867-80	137,190,078	189,690,774	1,610,933,082	1,443,672,070	8.49	7.61
1881-94	295,136,269	356,525,043	2,566,856,680	.....	.....	7.20
1876-78	34,865,870	53,146,120	304,316,668	296,828,106	5.72	5.59
1893-95	71,554,507	80,095,693	564,354,498	.....	.....	7.41

TABLE XI. (c).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the hay raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES PER TON OBTAINED BY			INDEX NUMBERS.				
	Simple Division (1)	Method for Cor- recting Averages Adopted in this Report. (2)	Allowing for Influ- ence of Changing Freight Rates per Ton. (3)	Corresponding to Column			Average of Index Numbers for Ten States.	Accord- ing to Relative Importance. (a)
				(1)	(2)	(3)		
1862-66 .....	\$6.85	\$6.28	\$4.87	81	78	91	90	72
1867-70 .....	8.29	7.52	5.76	98	94	107	105	92
1871-74 .....	8.94	8.64	5.91	106	108	110	109	106
1875-78 .....	6.12	6.09	4.27	72	76	80	82	74
1879-82 .....	8.19	8.37	5.94	97	104	110	110	104
1883-86 .....	6.27	6.64	4.48	74	83	83	89	85
1887-90 .....	7.84	7.87	5.72	93	98	106	104	98
1891-94 .....	7.16	7.47	6.47	84	93	120	105	95
1862-66 .....	6.85	6.28	4.87	81	78	91	90	72
1867-73 .....	8.46	7.90	5.77	100	99	107	106	96
1874-80 .....	6.99	6.95	4.75	83	87	88	92	87
1881-87 .....	7.08	7.35	5.23	84	92	97	98	93
1888-94 .....	7.41	7.66	5.94	87	96	110	104	96
1862-94 .....	7.31	7.31	5.58	86	91	104	99	91
1876-78 .....	5.59	5.59	4.71	66	70	88	79	68
1893-95 .....	7.41	7.63	5.91	87	95	110	103	98
1862 .....	5.23	4.24	.....	62	53	.....	71	53
1872 .....	8.47	8.02	5.38	100	100	100	100	100
1895 .....	6.73	8.77	6.43	79	109	120	108	105

(a) Computed by Sauerbeck's method.

TABLE XI. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in tons of the hay raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency, and its average home or farm value per ton in gold and currency, and simple index numbers, showing the percentage which the average gold value each year and period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.		Percent-ages.	Index Nos.
			Cur'ncy	Gold.		
1862	4,455,982	44,559,820	10.00	6.89	.....	42
1863	4,445,982	57,797,766	13.00	8.33	.....	51
1864	3,921,264	90,385,135	23.05	10.67	.....	65
1865	5,288,352	65,205,380	12.33	8.79	.....	53
1866	4,759,516	77,008,969	16.18	12.02	.....	73
1867	5,330,000	93,115,100	17.47	12.61	.....	76
1868	4,500,000	67,500,000	15.00	11.05	.....	67
1869	4,600,000	58,236,000	12.66	10.43	.....	63
1870	4,491,000	77,290,110	17.21	15.54	.....	94
1871	4,221,000	81,971,820	19.42	17.80	.....	108
1872	4,516,000	83,997,600	18.60	16.49	.....	100
1873	4,199,800	75,596,400	18.00	16.14	.....	98
1874	5,291,800	69,322,580	13.10	11.64	.....	71
1875	4,900,000	68,600,000	14.00	12.40	.....	75
1876	5,600,000	62,720,000	11.20	10.53	.....	64
1877	5,250,000	50,400,000	9.60	9.45	.....	57
1878	6,480,000	48,016,800	.....	7.41	.....	45
1879	6,156,000	60,267,240	.....	9.79	.....	53
1880	5,047,920	80,261,928	.....	15.90	.....	96
1881	5,502,591	80,062,699	.....	14.55	.....	88
1882	5,777,721	70,777,082	.....	12.25	.....	74
1883	6,053,833	63,565,247	.....	10.50	.....	64
1884	5,458,374	68,229,675	.....	12.50	.....	76
1885	5,210,266	66,430,892	.....	12.75	.....	77
1886	5,418,677	58,250,778	.....	10.75	.....	65
1887	5,818,900	62,611,364	.....	10.76	.....	65
1888	5,426,757	61,051,016	.....	11.25	.....	68
1889	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....
1893	7,298,208	82,688,697	.....	11.33	.....	69
1894	6,197,592	59,868,739	.....	9.66	.....	59
1895	3,557,524	48,738,079	.....	13.70	.....	83
1862-66	22,871,096	334,957,070	14.64	9.33	a-53.40	57
1867-70	18,921,000	296,141,210	15.65	12.98	b-66.52	79
1871-74	18,228,600	310,888,400	17.06	15.31	.....	93
1875-78	22,230,000	229,736,800	10.33	9.78	.....	59
1879-82	22,484,232	291,368,949	.....	12.96	.....	79
1883-86	22,141,150	256,476,592	.....	11.58	.....	70
1887-90	22,491,314	247,324,760	.....	11.00	.....	67
1891-94	26,991,600	285,114,872	.....	10.56	.....	64
1862-66	22,871,096	334,957,070	14.64	9.33	.....	57
1867-73	31,857,800	537,707,030	16.90	14.17	.....	86
1874-80	38,725,720	439,588,548	11.35	10.83	.....	66
1881-87	39,240,362	469,927,737	.....	11.98	.....	73
1888-94	43,664,014	469,823,268	.....	10.76	.....	65
1862-94	176,358,992	2,252,008,653	12.77	11.48	.....	70
1876-78	17,330,000	161,136,800	9.29	9.03	.....	55
1893-95	17,053,324	191,295,513	.....	11.22	.....	68
1862	4,455,982	44,559,820	10.00	6.89	.....	42
1872	4,516,000	83,997,600	18.60	16.49	.....	100
1895	3,557,524	48,738,079	.....	13.70	.....	83



TABLE XI. (d).—Continued.

## PENNSYLVANIA.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.		Percent- ages.	Index Nos.
			Currency	Gold.		
1862-66 .....	10,047,931	155,893,238	15.51	9.90	a-28.01	49
1867-70 .....	10,176,000	148,958,620	14.63	11.61	b-49.64	57
1871-74 .....	9,000,300	175,155,755	19.44	17.44	.....	86
1875-78 .....	12,427,500	138,752,450	11.16	10.60	.....	52
1879-82 .....	12,247,971	106,450,036	.....	13.59	.....	67
1883-86 .....	12,345,807	145,630,199	.....	11.80	.....	58
1887-90 .....	12,839,882	143,360,884	.....	11.17	.....	55
1891-94 .....	13,420,982	171,433,978	.....	12.77	.....	63
1862-66 .....	10,047,931	155,893,238	15.51	9.90	.....	49
1867-73 .....	16,763,400	282,820,980	16.87	14.14	.....	80
1874-80 .....	20,694,173	260,051,934	12.57	12.08	.....	60
1881-87 .....	22,171,878	270,786,840	.....	12.21	.....	60
1888-94 .....	22,837,991	276,082,168	.....	12.09	.....	60
1862-94 .....	92,515,373	1,245,635,160	13.46	12.25	.....	60
1876-78 .....	10,027,500	97,664,450	9.74	9.50	.....	47
1893-95 .....	9,888,917	131,486,323	.....	13.30	.....	66
1862 .....	2,245,420	22,454,200	10.00	6.89	.....	34
1872 .....	2,091,000	47,758,440	22.84	20.26	.....	100
1895 .....	2,872,047	35,326,178	.....	12.30	.....	61

## KENTUCKY.

1862-66 .....	355,470	5,287,617	14.87	10.78	a-3.17	93
1867-70 .....	561,000	7,834,700	13.96	11.24	b-12.59	97
1871-74 .....	1,263,300	18,183,734	14.39	12.86	.....	111
1875-78 .....	1,368,380	14,432,401	10.55	10.01	.....	86
1879-82 .....	1,002,817	11,920,704	.....	11.88	.....	102
1879-82 .....	1,248,138	12,341,606	.....	9.88	.....	85
1883-86 .....	1,440,458	17,285,496	.....	12.00	.....	103
1887-90 .....	3,236,610	33,340,130	.....	10.30	.....	89
1862-66 .....	355,470	5,287,617	14.87	10.78	.....	92
1867-73 .....	1,570,900	21,401,486	13.62	11.45	.....	99
1874-80 .....	2,149,606	25,557,365	11.89	11.51	.....	99
1881-87 .....	2,097,824	22,250,634	.....	10.61	.....	91
1888-94 .....	4,302,373	46,129,286	.....	10.72	.....	92
1862-94 .....	10,476,173	120,626,388	11.51	10.97	.....	94
1876-78 .....	1,093,380	10,513,651	9.62	9.38	.....	81
1893-95 .....	2,500,848	25,636,702	.....	10.25	.....	88
1862 .....	352,000	4,607,680	13.09	11.61	.....	100
1872 .....	693,718	7,589,275	.....	10.94	.....	94
1895 .....	.....	.....	.....	.....	.....	.....

TABLE XI. (d).—Continued.

## VIRGINIA.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.		Percent- ages.	Index Nos.
			Currency	Gold.		
1862-66 .....	203,698	2,908,807	14.28	10.61	a-2.82	56
1867-70 .....	886,000	12,303,240	13.89	10.91	b-21.52	58
1871-74 .....	637,400	11,541,892	18.11	16.32	.....	87
1875-78 .....	991,606	13,171,452	13.28	12.66	.....	67
1879-82 .....	992,803	13,734,551	.....	13.83	.....	73
1883-86 .....	1,250,642	14,783,681	.....	11.81	.....	63
1887-90 .....	1,645,198	18,988,234	.....	11.54	.....	61
1891-94 .....	2,705,024	34,212,276	.....	12.65	.....	67
1862-66 .....	203,698	2,908,807	14.28	10.61	.....	56
1867-73 .....	1,357,000	21,036,300	15.50	12.94	.....	69
1874-80 .....	1,547,223	20,920,096	13.52	12.94	.....	69
1881-87 .....	2,288,885	28,029,369	.....	12.25	.....	65
1888-94 .....	3,915,559	48,749,561	.....	12.45	.....	66
1862-94 .....	9,312,365	121,644,133	13.06	12.51	.....	66
1876-78 .....	801,600	10,030,752	12.51	12.20	.....	65
1893-95 .....	2,206,487	28,284,671	.....	12.82	.....	68
1862 .....	.....	.....	.....	.....	.....	.....
1872 .....	128,000	2,720,000	21.25	18.85	.....	100
1895 .....	774,601	8,853,689	.....	11.43	.....	61

## GEORGIA.

1862-66 .....	46,448	1,097,125	23.62	17.55	a-0.49	78
1867-70 .....	223,000	4,921,270	22.07	17.61	b-5.59	78
1871-74 .....	72,000	1,651,061	22.93	20.92	.....	93
1875-78 .....	107,190	1,607,035	14.99	14.23	.....	63
1879-82 .....	102,334	1,516,501	.....	14.73	.....	66
1883-86 .....	89,990	1,199,069	.....	13.32	.....	59
1887-90 .....	191,030	2,710,022	.....	14.19	.....	63
1891-94 .....	778,218	9,497,304	.....	12.21	.....	54
1862-66 .....	46,448	1,097,125	23.62	17.55	.....	78
1867-73 .....	277,500	6,181,556	22.28	18.49	.....	82
1874-80 .....	194,340	3,062,860	15.76	14.88	.....	66
1881-87 .....	170,794	2,359,548	.....	13.82	.....	62
1888-94 .....	921,728	11,498,328	.....	12.47	.....	56
1862-94 .....	1,610,810	24,199,417	15.02	14.09	.....	63
1876-78 .....	85,190	1,218,075	14.30	13.94	.....	62
1893-95 .....	603,226	7,330,903	.....	12.15	.....	54
1862 .....	.....	.....	.....	.....	.....	.....
1872 .....	17,600	445,456	25.31	22.45	.....	100
1895 .....	236,541	2,578,297	.....	10.90	.....	49

## STATISTICS OF LABOR.

TABLE XI. (d).—Continued.

## TEXAS.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.		Percent- ages.	Index Nos.
			Currency	Gold.		
1862-66	15,543	211,385	13.60	10.10	a-1.31	84
1867-70	87,300	1,236,240	14.16	11.23	b-8.30	94
1871-74	173,900	2,390,803	13.75	12.27		102
1875-78	357,200	3,884,750	10.88	10.29		86
1879-82	471,673	4,899,616		10.39		87
1883-86	368,219	3,787,032		10.28		86
1887-90	722,870	6,363,234		8.80		73
1891-94	2,157,778	18,306,612		8.48		71
1862-66	15,543	211,385	13.60	10.10		84
1867-73	199,200	2,950,003	14.81	12.38		103
1874-80	746,700	7,855,130	10.52	10.20		85
1881-87	684,032	7,109,708		10.39		87
1888-94	2,709,008	22,953,446		8.47		71
1862-94	4,354,483	41,079,672	9.43	9.26		77
1876-78	282,200	2,947,250	10.44	10.18		85
1893-95	1,549,683	13,672,928		8.82		74
1862	34,400	465,088	13.52	11.99		100
1872	676,677	4,351,033		6.43		54
1895						

## CALIFORNIA.

1862-66	304,791	3,657,492		12.00	a-10.80	77
1867-70	1,537,000	23,022,900		14.98	b-47.71	90
1871-74	2,510,700	42,831,353		17.06		109
1875-78	3,281,000	45,742,910		13.94		89
1879-82	4,690,437	55,975,825		11.94		77
1883-86	5,125,439	54,247,160		10.58		68
1887-90	6,097,444	71,752,428		11.77		75
1891-94	12,112,186	105,799,394		8.74		56
1862-66	304,791	3,657,492		12.00		77
1867-73	3,406,000	56,171,000		16.49		106
1874-80	6,413,158	83,664,998		13.05		84
1881-87	8,834,686	99,340,732		11.24		72
1888-94	16,700,362	160,195,240		9.59		61
1862-94	35,658,997	403,029,462		11.30		72
1876-78	2,591,000	34,295,810		13.24		85
1893-95	8,898,539	75,269,747		8.46		54
1862	304,791	3,657,492		12.00		77
1872	620,000	9,672,000		15.60		100
1895	2,791,710	19,709,473		12.00		77

TABLE XI. (e).

An exhibit of the total product in tons of the hay raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON.		Index Nos.
			Currency.	Gold.	
1862-66.....	33,844,977	504,012,734	19.56	14.89	86
1867-70.....	32,391,300	494,418,180	12.25	15.22	88
1871-74.....	31,895,200	562,642,998	17.64	15.66	91
1875-78.....	40,762,870	447,327,798	10.97	10.46	61
1879-82.....	41,992,867	545,866,182	.....	12.99	75
1883-86.....	42,569,385	488,465,369	.....	11.47	67
1887-90.....	45,428,196	507,785,058	.....	11.18	65
1891-94.....	61,402,398	657,704,566	.....	10.71	62
1862-66.....	33,844,977	504,012,734	19.56	14.89	86
1867-73.....	55,431,800	928,268,355	16.74	14.04	81
1874-80.....	70,470,920	840,700,931	11.92	11.47	67
1881-87.....	75,488,461	899,804,568	.....	11.91	69
1888-94.....	95,051,035	1,035,436,297	.....	10.89	63
1862-94.....	330,287,193	4,208,222,885	12.74	11.64	68
1867-94.....	296,442,216	3,704,210,151	12.12	11.88	69
1867-78.....	105,049,370	1,504,388,976	14.32	12.59	73
1879-86.....	84,562,252	1,034,331,551	.....	12.23	71
1887-94.....	106,830,594	1,165,489,624	.....	10.90	63
1867-78.....	105,049,370	1,504,388,976	14.32	12.59	73
1879-82.....	41,992,867	545,866,182	.....	13.00	75
1883-94.....	149,399,979	1,653,954,993	.....	11.07	64
1867-80.....	125,902,720	1,768,969,286	14.05	12.61	73
1881-94.....	170,539,496	1,935,240,865	.....	11.03	64
1876-78.....	32,210,870	317,806,788	9.87	9.68	56
1893-95.....	46,441,708	506,927,407	.....	10.91	63
1862.....	7,006,193	70,671,512	10.08	7.18	42
1872.....	7,759,000	149,666,264	19.28	17.25	100
1895.....	11,602,818	127,146,024	.....	10.96	64



TABLE XI. (f).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the hay raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY			INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correct- ing Averages Adopted in this Re- port per Ton. (2)	Allowing for Indu- stry of Changing Freights Rates per Ton. (3)	Corresponding to Column			Average of Index Numbers for Seven States.	Accord- ing to Relative Import- ance (a)
				(1)	(2)	(3)		
1862-66.....	\$14.89	\$9.91	\$7.00	86	57	93	71	54
1867-70.....	15.22	12.70	7.69	88	73	102	79	70
1871-74.....	15.66	16.04	7.81	91	93	104	98	90
1875-78.....	10.46	10.58	6.40	61	61	85	72	60
1879-82.....	12.99	12.99	7.68	75	75	102	79	75
1883-86.....	11.47	11.48	7.73	67	66	90	70	66
1887-90.....	11.18	11.16	8.53	65	64	103	71	66
1887-90.....	11.18	11.16	8.53	62	64	115	66	63
1891-94.....	10.71	11.02	8.62					
1862-66.....	14.89	9.91	7.00	86	57	93	71	54
1867-73.....	14.04	14.29	7.81	81	82	104	89	80
1874-80.....	11.47	11.51	6.86	67	66	91	76	66
1881-87.....	11.91	11.92	7.36	69	69	98	73	68
1888-94.....	10.89	11.03	7.90	63	64	105	67	64
1862-94.....	11.66	11.66	8.15	68	67	108	72	67
1876-78.....	9.68	9.75	6.29	56	56	84	69	55
1893-95.....	10.91	11.49	8.60	63	66	114	67	70
1862.....	7.18	.....	.....	42	.....	.....	51	39
1872.....	17.25	17.33	7.52	100	100	100	100	100
1895.....	10.96	11.86	8.55	64	67	114	68	65

(a) Computed by Sauerbeck's method.

TABLE XI. (g).

An exhibit of the total product in tons of the hay raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per ton, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.		Index Numbers.
			Currency.	Gold.	
1862-66.....	77,710,534	974,644,295	12.54	8.21	68
1867-70.....	78,904,000	980,580,760	12.43	9.91	82
1871-74.....	75,930,200	1,001,533,447	13.18	11.76	97
1875-78.....	107,335,990	876,239,816	8.16	7.76	64
1879-82.....	113,588,360	1,131,958,319	.....	9.90	82
1883-86.....	150,777,037	1,166,467,267	.....	7.73	61
1887-90.....	136,048,452	1,218,443,052	.....	8.95	74
1891-94.....	180,023,994	1,506,777,252	.....	8.36	69
1862-66.....	77,710,534	974,644,295	12.54	8.21	68
1867-73.....	135,342,000	1,737,711,125	12.84	10.75	89
1874-80.....	180,201,494	1,642,191,243	9.11	8.74	72
1881-87.....	242,408,357	2,081,082,556	.....	8.63	71
1888-94.....	284,656,182	2,421,014,989	.....	8.51	70
1862-94.....	920,318,567	8,856,644,208	9.62	8.80	73
1867-94.....	842,608,033	7,881,909,913	9.35	8.94	74
1867-78.....	262,170,190	2,858,454,023	10.90	9.57	79
1879-86.....	264,365,397	2,298,425,586	.....	8.69	72
1887-94.....	316,072,446	2,725,220,304	.....	8.62	71
1867-78.....	262,170,190	2,858,454,023	10.90	9.57	79
1879-82.....	113,588,360	1,131,958,319	.....	9.97	82
1883-94.....	466,849,483	3,891,687,571	.....	8.34	69
1867-90.....	315,543,494	3,379,902,368	10.61	9.65	80
1881-94.....	527,064,539	4,502,097,545	.....	8.54	71
1876-78.....	85,356,990	622,123,456	7.29	7.13	59
1893-95.....	126,537,401	1,071,281,905	.....	8.47	70
1862.....	16,168,873	140,192,222	8.67	6.04	42
1872.....	18,710,000	254,315,654	13.51	12.11	100
1895.....	32,387,713	266,964,179	.....	8.24	68

TABLE XI. (h).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the hay raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculation.

YEARS.	AVERAGE VALUES OBTAINED BY			INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Correct- ing Averages Adopted in this Report, Per Ton. (2)	Allowing for Infla- tion of Changing Freight Rates per Ton. (3)	Corresponding to Column			Average of Index Numbers for Seven- teen States.	Accord- ing to Relative Import- ance (a)
				(1)	(2)	(3)		
1862-66 .....	\$8.21	\$7.49	\$5.58	68	67	92	82	62
1867-70 .....	9.91	9.25	6.34	82	83	104	94	79
1871-74 .....	11.76	11.11	6.55	97	100	108	105	99
1875-78 .....	7.76	7.59	4.98	64	68	82	78	66
1879-82 .....	9.90	9.89	6.50	82	89	107	97	88
1883-86 .....	7.73	8.59	5.59	61	77	94	81	76
1887-90 .....	8.95	9.03	6.79	74	81	105	107	81
1891-94 .....	8.36	8.65	7.18	69	78	118	89	78
1862-66 .....	8.21	7.49	5.58	68	67	92	82	62
1867-73 .....	10.75	10.03	6.45	89	90	106	99	89
1874-80 .....	8.74	8.14	5.12	72	73	84	85	74
1881-87 .....	8.63	8.87	5.94	71	80	98	87	80
1888-94 .....	8.51	8.72	6.53	70	78	107	89	79
1862-94 .....	8.80	8.80	6.41	73	79	105	88	80
1876-78 .....	7.13	6.98	5.24	59	63	86	75	63
1893-95 .....	8.47	8.92	6.71	70	80	112	88	82
1862 .....	6.04	.....	.....	42	.....	.....	66	47
1872 .....	12.11	11.12	6.09	100	100	100	100	100
1895 .....	8.24	10.03	7.03	68	90	115	92	81

(a) Computed by Sauerbeck's method.

TABLE XI. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of hay raised in the states of the American Union not included in the ten given in Tables (a) to (c), and referred to in tables as the Exterior States, together with the total product of hay in said states in tons, and its total home or farm value in currency and gold, and its average home or farm value per ton in gold and currency.

YEARS.	Total Area in Acres.	Total Product in Tons.	TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars.	
			Currency.	Gold.	Cur.	Gold.
1862	9,168,729	11,947,690	124,878,665	87,178,879	10.45	7.29
1863	10,361,977	11,389,323	165,106,303	106,163,353	14.50	9.32
1864	9,422,242	10,369,951	242,732,677	112,385,229	23.41	10.84
1865	10,035,848	13,271,625	177,450,487	126,699,648	13.37	9.55
1866	10,821,362	12,047,012	218,362,065	162,243,014	18.13	13.47
1867	12,425,973	14,784,000	248,476,000	179,399,672	16.81	12.14
1868	12,971,591	14,630,200	225,453,070	167,934,163	15.55	11.48
1869	10,739,984	14,127,000	202,911,500	168,249,620	14.36	11.91
1870	11,372,887	13,310,000	228,436,730	207,277,845	17.16	15.57
1871	11,332,810	11,644,400	245,052,475	225,685,183	21.04	19.38
1872	11,426,374	12,861,800	241,319,689	215,143,499	18.77	16.73
1873	12,265,556	13,183,600	227,929,246	205,664,279	17.29	15.59
1874	12,186,042	14,496,400	215,810,479	192,930,357	14.89	13.31
1875	13,121,386	14,446,600	217,908,095	194,105,741	15.06	13.44
1876	14,407,741	13,355,100	198,661,802	187,522,997	14.88	14.04
1877	13,822,894	15,733,300	174,839,380	172,342,789	11.11	10.95
1878	14,475,300	19,870,176	180,562,104	180,562,104	9.09	9.09
1879	14,945,315	18,594,200	203,443,373	.....	.....	10.94
1880	14,751,841	16,304,079	242,204,170	.....	.....	14.86
1881	15,078,838	16,532,697	234,700,301	.....	.....	14.20
1882	15,552,012	17,664,877	221,265,121	.....	.....	12.53
1883	15,767,618	19,348,166	212,420,480	.....	.....	10.98
1884	16,204,968	18,455,489	220,894,243	.....	.....	11.97
1885	17,455,349	17,783,705	214,669,220	.....	.....	12.07
1886	17,150,921	18,067,497	197,178,491	.....	.....	10.91
1887	18,223,532	21,817,753	239,288,295	.....	.....	10.97
1888	18,706,230	20,969,671	227,322,556	.....	.....	10.84
1889	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....
1893	23,971,638	30,102,177	323,851,110	.....	.....	10.76
1894	23,950,603	31,227,591	291,073,740	.....	.....	9.35
1895	22,664,446	26,293,646	253,367,460	.....	.....	9.64
1862-66	49,810,158	59,025,601	928,530,197	594,670,123	15.73	10.08
1867-70	47,510,435	56,831,200	905,277,300	722,861,300	15.92	12.07
1871-74	47,210,782	52,186,200	930,111,889	839,423,318	17.81	16.07
1875-78	55,837,321	63,405,176	771,671,381	734,533,631	12.17	11.58
1879-82	60,328,006	69,095,853	901,612,965	.....	.....	13.05
1883-86	66,578,856	73,654,857	845,162,434	.....	.....	11.47
1887-90	73,859,524	85,574,848	933,221,702	.....	.....	10.91
1891-94	95,844,482	122,659,536	1,229,849,700	.....	.....	10.03
1862-66	49,810,158	59,025,601	928,530,197	594,670,123	15.73	10.08
1867-73	52,535,175	94,541,000	1,619,578,710	1,369,354,261	17.12	14.48
1874-80	97,720,519	112,799,855	1,433,129,403	1,376,111,531	12.71	12.17
1881-87	115,433,238	129,670,184	1,540,416,151	.....	.....	11.88
1888-94	151,480,474	186,416,631	1,923,783,107	.....	.....	10.32
1862-94	496,979,564	582,453,271	7,445,437,568	6,801,335,173	12.78	11.68
1867-94	447,169,406	523,427,670	6,516,907,371	6,206,665,050	12.45	11.84
1867-78	150,558,538	172,442,576	2,607,000,570	2,296,818,249	15.11	13.31
1879-86	126,906,862	142,750,710	1,746,775,399	.....	.....	12.24
1887-94	169,704,006	208,234,384	2,163,071,402	.....	.....	10.39
1867-78	150,558,538	172,442,576	2,607,000,570	2,296,818,249	15.11	13.31
1879-82	60,328,006	69,095,853	901,612,965	.....	.....	13.05
1883-94	236,282,862	281,889,241	3,008,223,836	.....	.....	10.67
1867-80	180,255,694	207,340,855	3,052,708,113	2,742,465,792	14.72	13.22
1881-94	266,913,712	316,086,815	3,464,199,258	.....	.....	10.96
1876-78	42,715,935	48,958,576	554,063,286	540,111,890	11.32	11.04
1893-95	70,586,687	87,623,414	868,292,310	.....	.....	9.91



TABLE XI. (j).

An exhibit by years and certain periods of years of the acres of hay raised in the United States, its average yield per acre in tons, together with its total farm or home value in dollars, currency, and its average home or farm value per ton, gold and currency.

YEARS.	Total Area in Acres.	Total Product in Tons.	Total Value in Dollars, Currency.	Average Yield Per Acre in Tons.	Average Value Per Ton in Dollars.	
					Currency.	Gold.
1862	14,899,902	21,110,370	194,399,375	1.42	9.20	6.40
1863	15,641,504	18,346,730	247,680,855	1.17	13.50	8.66
1864	15,034,564	18,116,691	365,707,074	1.20	20.18	9.35
1865	16,323,852	23,538,740	273,812,617	1.44	11.63	8.31
1866	17,668,904	21,778,627	317,561,837	1.23	14.58	10.83
1867	20,020,554	26,277,000	372,864,670	1.31	14.19	10.25
1868	21,541,573	26,141,900	351,942,930	1.21	13.46	9.99
1869	18,591,281	26,420,000	327,662,600	1.42	12.40	10.26
1870	19,861,805	24,525,000	338,969,680	1.23	13.82	12.52
1871	19,009,052	22,239,400	351,717,035	1.17	15.82	14.55
1872	20,318,936	23,812,800	345,969,079	1.17	14.53	12.93
1873	21,894,084	25,080,100	339,895,486	1.14	13.55	12.20
1874	21,769,772	25,133,900	331,420,788	1.11	13.19	11.77
1875	23,507,964	27,873,600	342,203,445	1.18	12.28	10.92
1876	25,422,097	30,867,100	300,901,252	1.22	9.75	9.19
1877	25,367,708	31,629,300	271,934,950	1.24	8.60	8.47
1878	26,981,300	39,608,296	285,543,752	1.47	7.21	7.21
1879	27,484,991	35,493,000	330,804,494	1.29	.....	9.32
1880	25,863,955	31,925,233	371,811,084	1.23	.....	11.65
1881	30,888,700	35,135,064	415,131,366	1.14	.....	11.81
1882	32,339,585	38,138,049	369,958,178	1.18	.....	9.70
1883	35,515,948	46,864,000	383,834,451	1.32	.....	8.19
1884	38,571,593	48,470,460	396,139,309	1.30	.....	8.17
1885	39,849,701	44,731,550	389,752,733	1.12	.....	8.71
1886	36,501,688	41,796,499	353,437,690	1.15	.....	8.46
1887	37,664,739	41,454,458	413,440,283	1.10	.....	9.97
1888	38,591,903	46,643,094	408,499,563	1.21	.....	8.76
1889	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....
1893	49,613,469	65,766,158	570,882,872	1.33	.....	8.68
1894	48,321,272	54,874,408	468,578,321	1.13	.....	8.54
1895	44,206,453	47,078,541	393,185,615	1.06	.....	8.35
1862-66	79,568,726	102,891,158	1,399,161,758	1.29	13.60	8.70
1867-70	80,015,213	103,363,000	1,391,439,880	1.29	13.46	10.72
1871-74	82,991,844	96,271,200	1,369,002,338	1.16	14.22	12.81
1875-78	101,089,769	129,978,296	1,200,583,399	1.29	9.24	8.78
1879-82	116,577,231	140,691,346	1,487,705,102	1.21	.....	10.57
1883-86	150,438,930	181,862,509	1,523,164,332	1.21	.....	8.37
1887-90	152,518,284	176,195,104	1,643,879,696	1.16	.....	9.33
1891-94	195,869,482	241,281,132	2,078,922,386	1.24	.....	8.62
1862-66	79,568,726	102,891,158	1,399,161,758	1.29	13.60	8.70
1867-73	141,237,285	174,501,200	2,429,021,480	1.24	13.92	11.73
1874-80	176,208,487	222,530,429	2,234,619,715	1.28	10.04	9.62
1881-87	251,331,954	296,590,080	2,721,694,139	1.18	.....	9.18
1888-94	310,718,027	376,021,778	3,309,361,799	1.21	.....	8.80
1862-94	959,064,479	1,172,534,645	12,093,858,889	1.23	10.31	9.48
1867-94	876,495,753	1,069,643,487	10,694,697,133	1.22	9.99	9.55
1867-78	264,096,826	329,613,396	3,961,025,617	1.25	12.02	10.57
1879-86	264,016,161	322,553,855	3,010,869,434	1.22	.....	9.33
1887-94	348,382,766	417,476,236	3,722,802,082	1.20	.....	8.92
1867-78	264,096,826	329,613,396	3,961,025,617	1.25	12.02	10.57
1879-82	113,577,231	140,691,346	1,487,705,102	1.24	.....	10.57
1883-94	498,821,696	599,338,745	5,245,966,414	1.20	.....	8.61
1867-80	314,445,772	397,031,629	4,663,641,195	1.26	11.57	10.54
1881-94	562,049,981	672,611,858	6,031,055,938	1.20	.....	8.97
1876-78	77,581,805	102,104,696	858,379,954	1.32	8.41	8.20
1893-95	142,141,194	167,719,107	1,432,646,808	1.18	.....	8.54

TABLE XI. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per ton of the hay raised in the ten Mississippi Valley states, in the Exterior States, including all excepting the ten Mississippi Valley states, and in the nation, together with the weight in tons and its value in dollars gold of the per capita product of hay in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER TON IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862.....	62	44	49	5.23	7.29	6.40	.....	.....
1863.....	90	56	67	7.63	9.32	8.66	.....	.....
1864.....	87	65	72	7.35	10.84	9.35	.....	.....
1865.....	77	57	64	6.70	9.55	8.31	.....	.....
1866.....	89	81	83	7.57	13.47	10.83	.....	.....
1867.....	92	73	79	7.81	12.14	10.25	.726	7.43
1868.....	95	68	77	8.10	11.48	9.99	.707	7.06
1869.....	99	71	79	8.36	11.91	10.26	.700	7.18
1870.....	105	93	97	8.90	15.57	12.52	.636	7.96
1871.....	109	116	113	9.23	19.38	14.55	.562	8.18
1872.....	100	100	100	8.47	16.73	12.93	.587	7.59
1873.....	100	93	94	8.44	15.59	12.20	.602	7.35
1874.....	114	79	91	9.66	13.31	11.77	.587	6.91
1875.....	97	80	84	8.22	13.44	10.92	.634	6.93
1876.....	65	84	71	5.49	14.04	9.19	.684	6.29
1877.....	71	65	66	6.02	10.95	8.47	.682	5.78
1878.....	63	54	56	5.32	9.09	7.21	.832	5.96
1879.....	89	65	72	7.54	10.94	9.32	.726	6.77
1880.....	98	89	90	8.30	14.86	11.65	.637	7.41
1881.....	114	85	91	9.70	14.20	11.81	.685	8.09
1882.....	86	75	75	7.26	12.53	9.70	.727	7.05
1883.....	74	66	63	6.23	10.98	8.19	.873	7.15
1884.....	69	72	63	5.84	11.97	8.17	.883	7.21
1885.....	77	72	67	6.50	12.07	8.71	.798	6.94
1886.....	78	65	65	6.59	10.91	8.46	.728	6.16
1887.....	105	66	77	8.87	10.97	9.07	.706	7.05
1888.....	83	65	68	7.06	10.84	8.76	.778	6.81
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	82	64	67	6.95	10.76	8.68	.984	8.54
1894.....	89	56	66	7.51	9.35	8.54	.804	6.86
1895.....	79	58	64	6.73	9.04	8.35	.675	5.63
1862-66.....	81	60	67	6.85	10.08	8.70	.....	.....
1867-70.....	98	72	83	8.29	12.07	10.72	.691	7.41
1871-74.....	106	96	91	8.94	16.07	12.81	.585	7.49
1875-78.....	72	69	68	6.12	11.58	8.78	.710	6.24
1879-82.....	97	78	82	8.19	13.05	10.57	.694	7.34
1883-86.....	74	69	65	6.27	11.47	8.37	.819	6.86
1887-90.....	93	65	72	7.84	10.91	9.33	.726	6.78
1891-94.....	84	59	67	7.16	10.03	8.62	.912	7.86
1862-65.....	81	60	67	6.85	10.08	8.70	.....	.....
1867-73.....	100	86	91	8.46	14.48	11.73	.643	7.55
1874-80.....	83	73	75	6.99	12.17	9.62	.685	6.59
1881-87.....	84	71	71	7.08	11.88	9.18	.771	7.08
1888-94.....	87	62	68	7.41	10.32	8.80	.842	7.38
1862-94.....	86	70	73	7.31	11.68	9.48	.....	.....
1867-94.....	86	71	74	7.34	11.84	9.55	.748	7.15
1867-78.....	89	79	82	7.55	13.31	10.57	.661	7.01
1879-86.....	83	73	72	7.03	12.24	9.33	.759	7.08
1887-94.....	88	62	69	7.45	10.39	8.92	.823	7.34
1867-78.....	89	79	82	7.55	13.31	10.57	.661	7.01
1879-82.....	97	78	82	8.19	13.05	10.57	.694	7.34
1883-94.....	83	63	67	7.05	10.67	8.61	.822	7.19
1867-80.....	90	79	81	7.61	13.22	10.54	.666	7.02
1881-94.....	85	69	69	7.20	10.96	8.97	.807	7.24
1876-78.....	66	66	63	5.59	11.04	8.20	.735	6.02
1893-95.....	87	59	66	7.41	9.91	8.54	.819	6.99

## CHAPTER XII.

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### TOBACCO.

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The greater portion of the tobacco crop of the United States is grown in comparatively few states. There was interference from 1862 to 1865, owing to the Civil War, with the growth of tobacco in many of the states that had previously been the main sources of supply. As a result the raising of tobacco was temporarily stimulated in many other states. With the close of the war and the cultivation of tobacco in the states formerly noted for this crop, its growth practically ceased in those states that began to grow it during the war. This fact explains the broken and irregular tables for tobacco in many states, especially those in the Mississippi Valley. With irregular crop returns, it was very difficult mathematically to calculate corrected average values, as was done for other crops. So none are given in the tables. The only summaries for the groups are by index numbers found in Table (f). By reference to that and the other tables it is seen, that, in all the groups and in the nation, the average value of tobacco declined from 1862 to the period 1875 to 1878, when the general minimum was reached. After that period the price movement was by four or seven-year periods decidedly upward down to the year of the panic, 1893. The year 1895 was for tobacco, as for most other crops, one of very low average prices, and its lessened farm values when compared with the averages for the four or seven years ending with 1894 measure the intensity of the financial depression following the panic of 1893.

About one-half of the tobacco crop of the United States is exported. The varying foreign demand for this staple has therefore as much, if not more, to do in establishing its price as does the home demand. The product per capita is so small that the possible errors due to a fraction of a ton or of a dollar equals, if they do not exceed, any variations due to changes in reported yields. Hence no special calculation is here presented showing the per capita yield of tobacco, as has been given for the other crops.



TABLE XII. (a).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in pounds of the tobacco raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total home or farm value of the same in currency, and its average home or farm value per pound in gold and currency, and simple index numbers showing the percentage which the average gold value each year and period was of the average gold value in the same states for the year 1872.

## OHIO.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66. . . .	134,338,725	67,169	14,888,832	.074	221.66	148.29	a-38.104	103
1867-70. . . .	58,849,000	29,425	5,498,200	.074	186.85	147.50	b-0.200	103
1871-74. . . .	96,811,000	48,405	7,326,801	.068	151.36	135.05	.....	81
1875-78. . . .	87,312,000	43,656	5,096,850	.055	116.75	110.70	.....	77
1879-82. . . .	121,594,417	60,797	8,340,552	.069	.....	137.19	.....	95
1883-86. . . .	128,396,536	64,198	9,109,547	.071	.....	141.90	.....	99
1887-90. . . .	108,870,000	54,435	8,953,480	.082	.....	164.48	.....	114
1891-94. . . .	101,431,160	50,716	5,878,710	.058	.....	115.91	.....	87
1862-94. . . .	837,602,838	418,801	65,092,972	.069	155.43	137.70	.....	96
1862-66. . . .	134,338,725	67,169	14,888,832	.074	221.66	148.29	.....	103
1867-73. . . .	142,660,000	71,330	11,655,001	.069	163.40	137.52	.....	96
1874-80. . . .	152,837,587	76,419	9,418,385	.059	123.25	118.59	.....	83
1881-87. . . .	216,705,366	108,352	16,030,133	.074	.....	147.94	.....	103
1888-94. . . .	191,061,160	95,531	13,100,621	.069	.....	137.13	.....	95
1876-78. . . .	73,812,000	36,906	4,286,850	.570	115.99	113.09	.....	79
1893-95. . . .	76,073,580	38,037	4,257,968	.600	.....	111.94	.....	78
1862. . . . .	25,528,972	12,764	2,808,187	.076	220.01	151.59	.....	105
1872. . . . .	30,000,000	15,000	2,430,000	.072	162.00	143.69	.....	100
1895. . . . .	25,358,000	12,679	1,318,613	.052	.....	104.00	.....	72

## INDIANA.

1862-66. . . .	44,994,906	22,498	5,122,604	.076	227.69	152.33	a-13.906	106
1867-70. . . .	28,552,000	14,276	2,493,365	.069	174.65	138.57	b-0.080	96
1871-74. . . .	52,166,000	26,083	3,908,360	.068	149.84	134.64	.....	94
1875-78. . . .	50,169,000	25,085	2,555,415	.048	101.87	97.12	.....	69
1879-82. . . .	31,073,263	15,537	1,928,823	.062	.....	124.14	.....	86
1883-86. . . .	42,262,240	21,131	3,015,844	.071	.....	142.72	.....	100
1887-90. . . .	39,742,000	19,871	2,633,222	.066	.....	132.52	.....	92
1891-94. . . .	16,748,848	8,374	1,061,304	.063	.....	126.74	.....	88
1862-94. . . .	305,708,257	152,855	22,718,937	.065	148.63	131.09	.....	91
1862-66. . . .	44,994,906	22,498	5,122,604	.076	227.69	152.33	.....	106
1867-73. . . .	68,718,000	34,359	5,273,725	.064	153.49	128.41	.....	89
1874-80. . . .	76,414,030	38,207	4,397,666	.057	115.10	110.40	.....	77
1881-87. . . .	62,808,473	31,404	4,416,316	.070	.....	140.63	.....	98
1888-94. . . .	52,772,848	26,387	3,508,626	.066	.....	132.97	.....	92
1876-78. . . .	37,419,000	18,710	1,854,165	.048	99.10	96.62	.....	67
1893-95. . . .	17,134,424	8,567	1,301,532	.076	.....	151.92	.....	106
1862. . . . .	9,037,665	4,529	1,086,920	.083	240.00	165.36	.....	115
1872. . . . .	16,250,000	8,125	1,137,500	.063	142.00	125.79	.....	100
1895. . . . .	8,760,000	4,380	770,880	.088	.....	176.00	.....	122



TABLE XII. (a).—Continued.

## ILLINOIS.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.			
					Cur'ncy.	Gold.		
1862.....	9,452,307	4,726	1,323,323	.096	280.01	192.93	.....	128
1863.....	20,397,537	10,199	2,600,686	.082	254.99	163.96	.....	109
1864.....	18,867,722	9,434	3,045,789	.075	322.85	149.48	.....	99
1865.....	18,867,722	9,434	1,969,316	.075	208.75	149.04	.....	92
1866.....	17,546,981	8,773	1,631,470	.069	185.86	138.17	.....	77
1867.....	15,792,000	7,896	1,263,360	.058	160.00	115.52	.....	89
1868.....	15,160,000	7,580	1,379,560	.067	182.00	134.13	.....	92
1869.....	14,500,000	7,250	1,218,000	.069	168.00	138.43	.....	153
1870.....	5,564,000	2,782	712,192	.116	256.00	231.16	.....	80
1871.....	6,398,000	3,199	422,268	.061	132.00	121.04	.....	100
1872.....	7,500,000	3,750	637,500	.075	170.00	150.79	.....	107
1873.....	7,575,000	3,788	681,750	.081	179.98	161.43	.....	123
1874.....	7,000,000	3,500	735,000	.093	210.00	186.68	.....	66
1875.....	8,000,000	4,000	448,000	.050	112.00	99.23	.....	71
1876.....	11,000,000	5,500	627,000	.054	114.00	107.27	.....	67
1877.....	8,090,000	4,045	417,100	.051	103.11	101.56	.....	53
1878.....	5,180,000	2,590	207,200	.040	.....	80.00	.....	80
1879.....	4,550,000	2,275	273,000	.060	.....	120.00	.....	66
1880.....	3,912,948	1,956	195,647	.050	.....	100.02	.....	109
1881.....	3,346,195	1,673	274,387	.082	.....	164.01	.....	106
1882.....	3,848,124	1,924	307,850	.080	.....	160.00	.....	106
1883.....	3,155,462	1,578	252,437	.080	.....	159.97	.....	93
1884.....	3,944,000	1,972	276,080	.070	.....	140.00	.....	119
1885.....	4,993,000	2,481	446,645	.090	.....	180.03	.....	80
1886.....	6,159,000	3,079	369,480	.069	.....	120.00	.....	133
1887.....	1,494,000	747	149,400	.100	.....	200.00	.....	101
1888.....	2,947,000	1,474	223,959	.080	.....	151.94	.....	.....
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....	.....
1893.....	2,109,150	1,055	147,641	.070	.....	139.94	.....	93
1894.....	1,790,980	895	132,533	.074	.....	148.08	.....	98
1895.....	3,076,000	1,538	246,080	.080	.....	160.00	.....	106
1862-66....	85,132,269	42,566	10,570,584	.078	248.33	167.24	a-11.256	111
1867-70....	51,016,000	25,508	4,573,112	.070	179.28	134.04	b-o.030	89
1871-74....	28,473,000	14,237	2,476,518	.078	173.96	156.62	.....	104
1875-78....	32,270,000	16,135	1,699,300	.050	105.32	96.08	.....	64
1879-82....	15,657,267	7,828	1,050,884	.067	.....	134.25	.....	89
1883-86....	18,221,462	9,111	1,344,642	.074	.....	147.60	.....	98
1887-90....	8,882,000	4,441	746,718	.084	.....	168.14	.....	112
1891-94....	7,800,260	3,900	560,348	.072	.....	143.68	.....	95
1862-94....	247,452,258	123,726	23,022,106	.072	186.08	145.65	.....	97
1862-66....	85,132,269	42,566	10,570,584	.078	248.33	167.24	.....	111
1867-73....	72,489,000	36,245	6,314,630	.071	174.22	137.67	.....	91
1874-80....	47,732,948	23,866	2,902,947	.057	121.64	112.22	.....	74
1881-87....	26,900,781	13,455	2,076,279	.077	.....	154.31	.....	102
1888-94....	15,188,260	7,594	1,157,666	.076	.....	152.45	.....	101
1876-78....	24,270,000	12,135	1,251,300	.050	103.11	100.50	.....	67
1893-95....	6,976,130	3,488	526,254	.075	.....	150.88	.....	190
1862.....	9,452,307	4,726	1,323,323	.096	280.01	192.93	.....	128
1872.....	7,500,000	3,750	637,500	.070	170.00	159.79	.....	100
1895.....	3,076,000	1,538	246,080	.080	.....	160.00	.....	106

TABLE XII. (a).—Continued.

## MICHIGAN.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.			
					Curr'cy.	Gold.		
1862-66. . . .	1,168,465	584	197,231	.113	337.72	226.94	a-6.95	70
1867-70. . . .	13,930,000	6,965	2,855,300	.164	409.95	324.27	b-0.010	100
1871-74. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1875-78. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1879-82. . . .	179,797	90	22,935	.128	.....	254.83	.....	78
1883-86. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1887-90. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1891-94. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1862-94. . . .	15,278,262	7,639	3,075,466	.158	402.60	325.09	.....	100
1862-66. . . .	1,168,465	584	197,231	.113	337.72	226.94	.....	70
1867-73. . . .	13,930,000	6,965	2,855,300	.162	409.95	325.71	.....	100
1874-80. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1881-87. . . .	179,797	90	22,935	.127	.....	254.83	.....	78
1888-94. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1876-78. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1893-95. . . .	.....	.....	.....	.....	.....	.....	.....	.....
1862. . . . .	160,825	80	20,907	.090	261.34	180.06	.....	55
1872. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
1895. . . . .	.....	.....	.....	.....	.....	.....	.....	.....

## WISCONSIN.

1862-66....	717,000	359	103,482	.097	288.25	192.84	a-11.507	126
1867-70....	1,213,000	607	221,866	.138	365.50	275.93	b-0.100	181
1871-74....	10,390,000	5,195	798,650	.066	153.73	132.90	.....	87
1875-78....	7,450,000	3,725	447,900	.056	120.24	111.13	.....	73
1879-82....	36,016,818	18,008	4,365,532	.121	.....	242.42	.....	159
1883-86....	75,043,828	37,522	7,434,566	.099	.....	198.14	.....	130
1887-90....	48,234,000	24,117	4,920,378	.102	.....	204.02	.....	134
1891-94....	73,950,982	36,975	4,394,860	.059	.....	118.86	.....	78
1862-94....	253,015,628	126,508	22,687,228	.089	179.33	177.53	.....	116
1862-66....	717,000	359	103,482	.097	288.25	192.84	.....	126
1867-73....	9,353,000	4,677	851,760	.078	182.12	156.19	.....	102
1874-80....	26,570,724	13,285	2,641,137	.097	198.81	193.16	.....	127
1881-87....	105,460,922	52,730	11,015,421	.104	.....	208.90	.....	137
1888-94....	110,913,982	55,457	8,075,428	.073	.....	145.61	.....	95
1876-78....	4,950,000	2,475	297,900	.059	120.36	117.35	.....	77
1893-95....	40,259,491	20,130	2,410,947	.060	.....	119.77	.....	79
1862.....	109,493	55	15,139	.082	238.89	164.60	.....	108
1872.....	3,250,000	1,625	279,500	.076	172.00	152.56	.....	100
1895.....	3,284,000	1,642	213,517	.065	.....	130.03	.....	85

TABLE XII. (a).—Continued.

## MISSOURI.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Percent- ages.	Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.			
					Currency.	Gold.		
1862-66. . . .	96,837,783	48,419	10,934,442	.076	225.83	151.08	a-24.287	90
1867-70. . . .	60,724,000	30,362	6,363,426	.083	209.59	166.93	b-0.150	99
1871-74. . . .	56,698,000	28,349	5,344,154	.085	188.51	170.68	.....	101
1875-78. . . .	139,402,000	69,701	8,547,450	.058	122.63	117.12	.....	69
1879-82. . . .	53,859,549	26,930	3,853,963	.072	.....	143.11	.....	85
1883-86. . . .	52,823,000	26,412	3,950,559	.075	.....	147.57	.....	88
1887-90. . . .	39,060,000	19,530	3,381,628	.087	.....	173.15	.....	103
1891-94. . . .	34,474,360	17,237	2,868,954	.083	.....	166.44	.....	99
1862-94. . . .	533,878,692	266,940	45,244,576	.074	169.49	145.59	.....	86
1862-66. . . .	96,837,783	48,419	10,934,442	.062	225.83	151.08	.....	90
1867-73. . . .	103,562,000	51,781	10,182,980	.080	196.65	160.48	.....	95
1874-80. . . .	179,339,820	89,670	11,706,773	.062	130.55	124.92	.....	74
1881-87. . . .	87,025,729	43,513	6,811,899	.078	.....	156.55	.....	93
1888-94. . . .	67,113,360	33,557	5,608,482	.084	.....	167.13	.....	99
1876-78. . . .	99,402,000	49,701	6,267,450	.061	126.10	122.95	.....	73
1893-95. . . .	25,955,180	12,978	2,192,943	.084	.....	168.97	.....	100
1862. . . . .	28,609,948	14,305	3,433,196	.083	240.00	165.36	.....	98
1872. . . . .	16,500,000	8,250	1,567,500	.084	190.00	168.53	.....	100
1895. . . . .	8,718,000	4,359	758,466	.087	.....	174.00	.....	103

## IOWA.

1862. . . . .	375,502	188	45,060	.083	239.68	165.14		
1863. . . . .	300,402	150	55,574	.119	370.48	238.23		
1874. . . . .	390,522	195	97,630	.116	500.67	231.81		
1865. . . . .	419,811	210	81,863	.139	389.82	278.33		
1866. . . . .	390,424	195	78,085	.149	400.44	297.52		
1867. . . . .	386,000	193	88,780	.166	460.00	332.12		
1868. . . . .	374,000	187	86,020	.169	460.00	339.02		
1869. . . . .								
1870. . . . .								
1871. . . . .	75,000	38	6,000	.073	157.89	144.70		
1872. . . . .								
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TABLE XII. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of tobacco grown in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska and Kansas, together with the total product of tobacco in said states in pounds, and its total home or farm value in dollars, currency and gold, and its average home or farm values per pound in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Value Per Ton in Dollars, Gold.	VALUE PER POUND IN CENTS.	
		Pounds.	Tons.	Currency.	Gold.		Cur.	Gold.
1862	73,233	73,364,072	36,682	8,742,679	6,023,706	164.21	11.9	8.2
1863	117,246	85,967,082	42,984	11,080,184	7,124,558	165.75	14.0	8.3
1864	89,633	71,194,701	35,597	9,378,805	4,342,387	121.99	13.0	6.1
1865	91,748	69,679,095	34,839	7,408,549	5,289,704	151.84	10.6	7.6
1866	80,741	65,135,421	32,568	5,615,708	4,172,471	128.12	8.6	6.4
1867	72,044	49,824,000	24,912	5,271,385	3,805,940	152.79	10.6	7.6
1868	61,618	48,461,000	24,231	5,083,526	3,743,559	154.62	10.5	7.7
1869	77,487	59,500,000	29,750	5,543,000	4,567,432	153.53	9.0	7.7
1870	68,791	57,741,000	28,871	6,385,172	5,765,810	199.71	11.0	10.0
1871	63,367	50,378,000	25,189	4,290,283	3,934,190	156.19	8.0	7.8
1872	78,693	73,500,000	36,750	6,052,000	5,368,124	146.07	8.0	7.3
1873	76,342	72,845,000	36,422	4,813,850	4,318,023	118.56	6.6	5.9
1874	74,119	48,410,000	24,205	4,756,350	4,228,395	174.69	9.8	8.7
1875	111,262	77,025,000	38,513	4,410,700	3,907,880	101.47	5.6	5.1
1876	130,214	101,315,000	50,658	6,592,750	6,203,778	122.46	6.5	6.1
1877	102,907	80,336,000	40,168	4,691,055	4,620,689	115.03	5.8	5.8
1878	75,600	59,357,000	29,678	2,789,360	2,789,360	93.90	4.7	4.7
1879	63,900	45,802,000	22,901	2,859,753	.....	124.87	.....	6.2
1880	74,993	72,380,109	36,190	5,131,890	.....	141.80	.....	7.1
1881	76,753	67,509,916	33,755	5,801,159	.....	171.86	.....	8.6
1882	77,893	72,689,086	36,344	5,769,887	.....	158.76	.....	7.9
1883	77,820	67,858,066	28,929	4,811,394	.....	166.31	.....	8.3
1884	85,364	72,781,000	36,391	5,679,794	.....	156.08	.....	7.8
1885	99,555	94,083,000	47,017	7,416,940	.....	157.75	.....	7.9
1886	110,342	92,075,000	46,037	6,947,120	.....	150.90	.....	7.5
1887	66,946	42,144,000	21,072	3,948,779	.....	187.39	.....	9.4
1888	89,944	80,250,000	40,125	6,368,934	.....	158.73	.....	7.9
1889	.....	.....	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....	.....	.....
1893	87,911	56,134,594	28,067	3,749,288	.....	133.58	.....	6.7
1894	75,316	61,068,211	30,534	3,632,800	.....	118.98	.....	5.9
1895	68,550	49,196,000	24,598	3,307,556	.....	134.46	.....	6.7
1862-66	452,601	365,340,371	182,670	42,225,925	26,952,826	147.53	11.6	7.4
1867-70	279,940	215,526,000	107,764	22,283,083	17,885,741	165.97	10.3	8.3
1871-74	292,521	245,133,000	122,566	19,912,483	17,848,732	145.63	8.1	7.3
1875-78	419,983	318,033,000	159,017	18,483,865	17,521,707	110.18	5.8	5.5
1879-82	293,539	258,581,111	129,190	19,562,689	.....	151.43	.....	7.6
1883-86	373,081	316,747,066	158,374	24,855,158	.....	156.94	.....	7.8
1887-90	313,780	244,788,000	122,394	20,635,426	.....	168.60	.....	9.2
1891-94	326,454	234,405,610	117,202	14,764,176	.....	125.96	.....	6.3
1862-66	452,601	365,340,371	182,670	42,225,925	26,952,826	147.53	11.6	7.4
1867-73	498,242	412,249,000	206,125	37,439,216	31,506,078	152.85	9.1	7.6
1874-80	632,995	484,625,109	242,313	31,231,858	29,741,745	122.74	6.0	6.1
1881-87	594,673	499,090,068	249,545	40,374,983	.....	161.80	.....	8.1
1888-94	573,288	437,049,610	218,524	31,450,823	.....	143.92	.....	7.2
1862-94	2,751,899	2,198,354,158	1,099,177	182,722,805	160,026,455	145.59	8.4	7.3
1867-94	2,299,298	1,873,013,787	916,507	140,496,880	133,073,629	145.20	7.7	7.3
1867-78	992,444	778,692,000	389,347	60,679,431	.....	136.81	7.8	6.8
1879-86	666,620	575,128,177	287,564	44,417,847	53,256,180	154.46	.....	7.7
1887-94	640,234	479,133,610	239,596	35,399,602	.....	147.75	.....	7.4
1867-78	992,444	778,692,000	389,347	60,679,431	53,256,180	136.81	7.8	6.8
1879-82	293,539	258,381,111	129,190	19,562,689	.....	151.43	.....	7.6
1883-94	1,013,315	795,940,676	397,970	60,254,760	.....	151.41	.....	7.6
1867-80	1,131,337	896,874,109	448,438	68,671,074	61,247,823	136.58	7.7	6.8
1881-94	1,167,961	936,159,678	468,069	71,825,806	.....	153.45	.....	7.7
1876-78	308,721	241,008,000	120,504	14,073,165	13,613,827	112.97	5.8	5.6
1893-95	231,777	166,398,805	83,199	10,689,644	.....	125.97	.....	6.3

TABLE XII. (c).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in pounds of the tobacco raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency and its average home or farm value per pound in gold and currency, and simple index numbers showing the percentage which the average gold value each year or period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.		
					Currency.	Gold.	
1862.....	7,205,727	3,603	720,573	.069	200.00	137.80	86
1863.....	10,088,017	5,044	2,017,603	.128	400.00	257.20	161
1864.....	12,912,662	6,457	3,212,025	.115	494.35	230.35	144
1865.....	11,836,607	5,918	1,657,125	.100	280.00	190.92	125
1866.....	9,824,384	4,912	1,326,291	.100	270.00	200.61	126
1867.....	8,743,000	4,372	1,224,020	.090	280.00	202.10	127
1868.....	12,000,000	6,000	1,500,000	.090	250.00	184.17	115
1869.....	8,500,000	4,250	1,190,000	.115	280.00	230.71	144
1870.....	2,584,000	1,292	516,800	.181	400.00	361.19	226
1871.....	2,558,000	1,279	322,308	.115	252.00	231.08	145
1872.....	3,000,000	1,500	270,000	.080	180.00	159.66	100
1873.....	2,950,000	1,475	324,500	.100	220.00	197.34	124
1874.....	1,593,000	796	207,090	.115	260.10	232.24	145
1875.....	2,750,000	1,375	302,500	.095	220.00	195.00	122
1876.....	1,500,000	750	126,000	.080	168.00	156.75	98
1877.....	1,860,000	930	185,100	.....	.....	.....	.....
1878.....	2,220,000	1,110	244,200	.110	.....	220.00	138
1879.....	2,432,750	1,216	291,930	.120	.....	240.07	150
1880.....	6,572,800	3,286	788,736	.120	.....	240.00	150
1881.....	6,291,217	3,146	880,770	.140	.....	279.96	175
1882.....	9,751,386	4,876	1,170,166	.120	.....	239.98	150
1883.....	9,068,789	4,534	1,178,943	.130	.....	260.00	163
1884.....	8,162,000	4,081	979,440	.120	.....	240.00	150
1885.....	10,234,000	5,117	1,023,416	.100	.....	200.00	126
1886.....	7,583,000	3,792	872,045	.115	.....	229.81	144
1887.....	7,623,000	3,811	876,645	.115	.....	230.00	144
1888.....	6,488,000	3,244	778,554	.120	.....	240.00	150
1889.....	.....	.....	.....	.....	.....	.....	.....
1890.....	.....	.....	.....	.....	.....	.....	.....
1891.....	.....	.....	.....	.....	.....	.....	.....
1892.....	.....	.....	.....	.....	.....	.....	.....
1893.....	7,860,365	3,680	1,118,775	.152	.....	304.01	190
1894.....	6,934,620	3,467	554,770	.080	.....	160.00	100
1895.....	.....	.....	.....	.....	.....	.....	.....
1862-66.....	51,867,397	25,934	8,933,617	.105	344.39	210.10	132
1867-70.....	31,827,000	15,914	4,430,820	.108	278.41	215.90	155
1871-74.....	10,101,000	5,050	1,123,898	.109	222.75	200.19	126
1875-78.....	8,330,000	4,165	857,800	.097	205.95	195.22	122
1879-82.....	25,048,153	12,524	3,131,602	.125	.....	250.00	157
1883-86.....	35,047,789	17,524	4,053,844	.116	.....	231.33	145
1887-90.....	28,222,000	14,111	3,310,398	.117	.....	234.59	147
1891-94.....	28,589,970	14,295	3,347,090	.117	.....	234.00	147
1862-66.....	51,867,397	25,934	8,933,617	.105	344.39	210.10	132
1867-73.....	40,335,000	20,168	5,347,628	.105	265.15	211.35	132
1874-80.....	18,928,550	9,464	2,145,556	.105	225.87	209.07	131
1881-87.....	58,713,392	29,357	6,981,425	.119	.....	237.80	149
1888-94.....	49,188,970	24,594	5,780,843	.118	.....	235.05	147
1862-94.....	219,033,309	109,517	29,189,069	.112	266.52	224.12	140
1876-78.....	5,580,000	2,790	555,300	.097	199.03	194.05	122
1893-95.....	18,036,000	9,018	1,926,641	.107	.....	213.64	134
1862.....	7,205,727	3,603	720,573	.070	200.00	137.80	86
1872.....	3,000,000	1,500	270,000	.080	180.00	159.66	100
1895.....	3,722,000	1,861	253,096	.070	.....	136.00	85



TABLE XII. (c).—Continued.

## PENNSYLVANIA.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.		
					Cur'ney.	Gold.	
1862-66.....	26,142,289	13,071	4,157,845	.106	318.09	212.80	82
1867-70.....	12,623,000	6,311	1,485,189	.090	235.29	180.73	70
1871-74.....	43,642,000	21,821	6,189,084	.126	283.63	252.86	97
1875-78.....	70,000,000	35,000	6,802,000	.092	194.34	183.85	71
1879-82.....	134,321,998	67,161	14,921,082	.111	.....	222.17	86
1883-86.....	128,808,099	64,404	14,524,045	.113	.....	225.51	87
1887-90.....	128,786,000	64,393	17,238,430	.134	.....	267.71	103
1891-94.....	107,886,178	53,943	12,204,106	.113	.....	226.24	87
1862-66.....	26,142,289	13,071	4,157,845	.106	318.09	212.80	82
1867-73.....	45,765,000	22,882	6,099,264	.113	266.55	226.05	87
1874-80.....	144,971,808	72,486	14,518,004	.097	200.29	193.85	75
1881-87.....	238,871,289	119,436	29,336,078	.119	.....	245.62	95
1888-94.....	196,459,178	98,229	23,410,581	.114	.....	238.33	92
1862-94.....	652,209,564	326,104	77,521,772	.115	237.72	229.12	88
1876-78.....	54,000,000	27,000	5,202,000	.094	192.67	187.85	73
1893-95.....	68,248,000	34,124	7,160,623	.105	.....	209.84	81
1862.....	3,976,982	1,988	556,777	.100	280.07	192.97	75
1872.....	14,750,000	7,375	2,153,500	.130	292.00	259.00	100
1895.....	14,305,000	7,153	1,058,570	.070	.....	147.99	57

## KENTUCKY.

1862-66.....	172,748,971	86,374	19,187,779	.081	222.14	161.03	108
1867-70.....	171,400,000	85,700	17,102,800	.074	199.56	156.05	105
1871-74.....	420,000,000	210,000	34,111,500	.072	162.43	144.97	97
1875-78.....	507,180,850	253,590	31,279,042	.058	123.34	116.63	78
1879-82.....	637,841,549	318,921	47,035,046	.074	.....	147.44	99
1883-86.....	783,089,155	391,545	55,610,413	.071	.....	141.86	95
1887-90.....	798,404,000	399,202	70,310,996	.088	.....	176.22	118
1891-94.....	801,089,620	400,545	53,170,836	.066	.....	132.60	89
1862-66.....	172,748,971	86,374	19,187,779	.081	222.14	161.06	108
1867-73.....	556,900,000	278,450	46,936,300	.071	168.56	141.61	95
1874-80.....	817,578,705	408,789	52,332,292	.062	128.02	123.60	83
1881-87.....	1,260,928,849	630,465	99,777,736	.090	.....	158.26	106
1888-94.....	1,483,597,620	741,799	109,574,305	.074	.....	147.71	99
1862-94.....	4,291,754,145	2,145,877	327,808,412	.073	152.76	145.68	98
1876-78.....	377,180,000	188,590	22,689,042	.059	120.31	117.30	79
1893-95.....	508,296,000	290,148	36,112,327	.062	.....	124.46	84
1862.....	.....	.....	.....	.....	.....	.....	.....
1872.....	130,000,000	65,000	10,920,000	.075	168.09	149.02	100
1895.....	179,753,000	89,877	9,526,909	.053	.....	106.00	71







TABLE XII. (d).

An exhibit of the total product in pounds of the tobacco raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per pound, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.		
					Currency.	Gold.	
1862-66.....	366,561,574	183,281	48,372,237	.089	263.92	176.80	106
1867-70.....	511,934,000	255,967	53,121,973	.082	207.53	163.60	98
1871-74.....	647,702,000	323,851	59,776,280	.083	184.58	165.27	99
1875-78.....	848,530,850	424,265	56,612,542	.063	133.44	126.51	76
1879-82.....	1,130,069,757	565,035	85,028,002	.075	.....	150.48	90
1883-86.....	1,313,414,015	656,707	101,353,921	.077	.....	154.34	93
1887-90.....	1,242,296,000	621,148	111,249,144	.090	.....	179.10	108
1891-94.....	1,145,953,732	572,977	81,499,710	.071	.....	142.24	85
1862-66.....	366,561,574	183,281	48,372,237	.089	263.92	176.80	106
1867-73.....	1,077,611,000	538,806	102,568,608	.080	190.36	159.31	96
1874-80.....	1,444,877,123	722,438	101,539,066	.068	140.55	135.44	81
1881-87.....	2,172,302,499	1,086,151	178,953,869	.082	.....	164.76	99
1888-94.....	2,145,109,732	1,072,555	165,580,119	.077	.....	154.38	93
1862-94.....	7,206,461,928	3,603,231	597,013,899	.078	165.69	155.59	93
1867-94.....	6,839,900,354	3,419,950	548,641,662	.077	160.42	154.45	93
1867-78.....	2,008,166,850	1,004,083	169,510,795	.074	168.82	148.46	89
1879-86.....	2,443,483,772	1,221,742	186,382,013	.076	.....	152.55	92
1887-94.....	2,388,249,732	1,194,125	192,748,854	.081	.....	161.41	97
1867-78.....	2,008,166,850	1,004,083	169,510,795	.074	168.82	148.46	89
1879-82.....	1,130,069,757	1,565,035	85,028,002	.075	.....	150.48	90
1883-94.....	3,701,663,747	1,850,832	294,102,775	.079	.....	158.90	95
1867-80.....	2,522,488,123	1,261,244	204,107,674	.073	161.83	145.64	88
1881-94.....	4,317,412,231	2,158,706	344,533,988	.080	.....	159.60	96
1876-78.....	641,296,000	320,648	40,921,342	.062	127.62	124.43	75
1893-95.....	752,204,000	412,102	55,862,990	.074	.....	135.56	81
1862.....	11,182,709	5,591	1,277,350	.079	228.47	157.41	95
1872.....	196,100,000	98,050	18,397,800	.083	187.64	166.43	100
1895.....	251,214,000	125,607	151,131,135	.060	.....	120.32	72

TABLE XII. (e).

An exhibit of the total product in pounds of the tobacco raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, with the total value of the same in currency, and its average gold and currency farm values per pound, together with the index numbers for those values, the year 1872 having been chosen as the basis of comparison.

YEARS.	TOTAL PRODUCT IN		Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			Index Nos.
	Pounds.	Tons.		Per Pound, Gold.	Per Ton.		
					Cur'ney.	Gold.	
1862-66.....	731,901,945	365,951	90,598,162	.081	247.57	162.20	101
1867-70.....	727,460,000	363,731	75,405,056	.082	207.33	164.30	102
1871-74.....	892,835,000	446,417	79,688,763	.080	178.47	159.63	99
1875-78.....	1,166,563,850	583,282	75,096,407	.061	128.77	122.06	76
1879-82.....	1,388,450,868	694,225	104,590,781	.075	.....	150.66	94
1883-86.....	1,630,161,081	815,081	123,209,079	.072	.....	154.84	96
1887-90.....	1,487,084,000	743,542	131,884,570	.089	.....	177.37	110
1891-94.....	1,380,359,342	690,179	96,283,886	.070	.....	139.48	87
1862-66.....	731,901,945	365,951	90,598,162	.081	247.57	162.20	101
1867-73.....	1,489,860,000	744,931	140,007,324	.079	187.97	157.52	98
1874-80.....	1,929,502,232	964,751	132,770,924	.066	137.62	132.25	82
1881-87.....	2,671,392,567	1,335,696	219,328,552	.082	.....	164.22	102
1888-94.....	2,582,159,342	1,291,079	197,030,942	.076	.....	152.62	95
1862-94.....	9,404,816,086	4,702,408	779,736,704	.077	165.82	153.25	95
1867-94.....	8,672,914,141	4,336,457	689,138,542	.076	158.92	152.03	94
1867-78.....	2,786,858,850	1,393,430	230,190,226	.073	165.20	145.20	90
1879-86.....	3,018,611,949	1,509,306	230,799,860	.076	152.92	152.26	95
1887-94.....	2,867,443,342	1,433,721	228,148,456	.080	.....	159.13	99
1867-78.....	2,786,858,850	1,393,430	230,190,226	.073	165.20	145.20	90
1879-82.....	1,138,450,868	694,225	104,590,781	.075	.....	150.66	94
1883-94.....	4,497,604,423	2,248,802	354,357,535	.079	.....	157.58	98
1867-80.....	3,409,362,232	1,709,682	272,778,748	.072	159.55	143.27	89
1881-94.....	5,253,551,909	2,626,775	416,359,794	.079	.....	158.51	99
1876-78.....	882,304,000	441,152	54,994,507	.061	124.66	121.30	75
1893-95.....	918,602,805	495,301	66,552,634	.067	.....	134.37	83
1862.....	84,546,781	42,273	10,020,029	.082	237.03	163.31	101
1872.....	269,600,000	134,800	24,449,800	.080	181.38	160.88	100
1895.....	300,410,000	150,205	154,438,691	.051	.....	102.78	64



TABLE XII. (f).

An exhibit by index numbers calculated by different methods of the comparative price movement of tobacco in the several groups of states in the United States, from 1862 to 1895, inclusive.

YEARS.	INDEX NUMBERS.								
	TO SIMPLE AVERAGE VALUE			AVERAGE OF THE STATES.			ACCORDING TO RELATIVE IMPORTANCE.		
	Seven States.	Ten States.	Seventeen States.	Seven States.	Ten States.	Seventeen States.	Seven States.	Ten States.	Seventeen States.
1862-66....	106	101	101	111	99	104	103	98	101
1867-70....	98	114	102	107	121	116	94	102	96
1871-74....	99	100	99	109	88	98	90	99	99
1875-78....	76	75	76	100	74	87	94	72	74
1879-82....	90	104	94	97	99	100	87	102	89
1883-86....	93	107	96	102	103	102	91	106	93
1887-90....	108	115	110	111	111	111	106	115	107
1891-94....	85	86	87	97	89	93	85	85	86
1862-66....	106	101	101	111	99	104	103	98	101
1867-73....	96	105	98	110	108	108	94	99	95
1874-80....	81	84	82	101	88	95	80	81	79
1881-87....	99	111	102	100	102	101	95	109	98
1888-94....	93	98	95	102	96	99	93	97	91
1862-94....	93	91	95	105	99	101	92	96	93
1876-78....	75	77	75	90	77	83	74	74	95
1893-95....	81	86	83	93	93	93	82	86	83
1862.....	95	112	101	81	99	95	80	107	103
1872.....	100	100	100	100	100	105	100	100	100
1895.....	72	92	64	75	97	88	74	92	64

TABLE XII. (g).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of tobacco raised in the states of the American Union not included in the ten given in Tables (a) to (c), and referred to in tables as the Exterior States, together with the total product of tobacco in said states in pounds, and its total home or farm value in currency and gold, and its average home or farm value per pound in gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Value Per Ton in Dollars, Gold.	Average Value Per Pound in Cents.	
		Pounds.	Tons.	Currency.	Gold.		Cur.	Gold
1862 ...	61,355	63,387,674	31,694	7,655,017	5,274,307	166.41	12.0	8.3
1863 ...	99,177	77,386,000	38,693	13,159,425	8,461,510	218.68	17.0	10.9
1864 ...	150,193	126,265,528	63,133	19,956,420	9,239,822	146.37	15.9	7.3
1865 ...	144,615	115,637,858	57,819	15,939,464	11,380,777	196.61	13.8	9.8
1866 ...	439,366	322,993,263	161,496	48,163,180	35,785,243	221.59	14.9	11.0
1867 ...	422,289	253,539,000	131,950	36,012,046	26,006,697	197.05	13.6	9.9
1868 ...	474,382	353,539,000	176,769	41,528,474	30,606,485	173.14	11.7	8.7
1869 ...	526,513	333,500,000	166,750	35,722,000	29,434,928	176.52	10.7	8.8
1870 ...	506,209	327,259,000	163,629	32,114,828	28,999,690	177.23	9.8	8.9
1871 ...	516,633	375,622,000	187,811	37,457,717	34,348,726	182.94	9.9	9.1
1872 ...	505,907	406,500,000	203,250	43,868,000	38,910,916	191.44	10.8	9.6
1873 ...	576,658	433,155,000	216,578	37,184,150	33,354,183	154.01	8.6	7.7
1874 ...	425,881	266,590,000	133,295	29,893,650	26,575,455	199.37	11.2	10.0
1875 ...	598,738	444,975,000	222,487	37,349,300	33,091,480	148.73	8.4	7.4
1876 ...	602,786	433,685,000	216,842	32,997,250	31,050,412	143.19	7.6	7.2
1877 ...	642,093	499,664,000	249,832	35,908,945	35,370,311	141.58	7.2	7.1
1878 ...	504,400	369,843,000	184,922	31,546,640	31,546,640	170.59	8.5	8.5
1879 ...	574,100	426,198,000	213,099	46,700,247	.....	219.15	.....	11.0
1880 ...	535,007	387,619,891	193,810	45,468,110	.....	234.60	.....	11.7
1881 ...	569,486	382,370,098	191,185	37,571,177	.....	196.52	.....	9.8
1882 ...	593,229	440,388,472	220,195	37,420,064	.....	169.94	.....	8.5
1883 ...	560,919	393,687,575	196,844	35,644,058	.....	181.08	.....	9.1
1884 ...	639,304	468,723,000	234,361	38,480,357	.....	164.19	.....	8.2
1885 ...	652,965	468,703,000	234,351	35,848,658	.....	152.97	.....	7.6
1886 ...	639,868	460,462,000	220,232	32,521,098	.....	147.67	.....	7.4
1887 ...	531,674	344,096,000	172,048	37,028,480	.....	215.22	.....	10.8
1888 ...	657,382	485,545,000	242,773	37,297,731	.....	153.67	.....	7.7
1889 .....	.....	.....	.....	.....	.....	.....	.....	.....
1890 .....	.....	.....	.....	.....	.....	.....	.....	.....
1891 .....	.....	.....	.....	.....	.....	.....	.....	.....
1892 .....	.....	.....	.....	.....	.....	.....	.....	.....
1893 ...	615,041	426,889,369	213,445	35,406,154	.....	165.88	.....	8.3
1894 ...	447,787	345,610,174	172,805	24,127,939	.....	139.63	.....	6.9
1895 ...	565,400	442,348,000	221,174	32,266,664	.....	145.89	.....	7.3
1862-66..	894,706	705,670,323	352,835	104,873,506	70,141,659	198.79	14.9	9.9
1867-70..	1,929,393	1,278,198,000	639,098	145,377,348	115,041,800	180.01	11.4	9.0
1871-74..	2,025,079	1,481,867,000	740,934	148,403,517	133,189,280	179.56	10.0	9.0
1875-78..	2,348,017	1,748,167,000	874,083	137,802,135	131,058,843	149.94	7.9	7.5
1879-82..	2,272,222	1,636,576,461	818,289	167,159,598	.....	204.28	.....	10.2
1883-86..	2,493,056	1,771,575,575	885,788	142,494,171	.....	160.87	.....	8.0
1887-90..	2,378,112	1,659,282,000	829,641	148,652,422	.....	179.18	.....	8.9
1891-94..	2,125,656	1,544,999,086	772,500	119,068,186	.....	154.13	.....	7.7
1862-66..	894,706	705,670,323	352,835	104,873,506	70,141,659	198.79	14.9	9.9
1867-73..	3,528,591	2,493,475,000	1,246,737	263,887,215	221,655,625	177.79	10.6	8.9
1874-80..	3,883,005	2,828,574,891	1,414,287	259,864,142	249,802,655	177.60	9.2	8.8
1881-87..	4,187,845	2,938,430,144	1,469,216	254,513,892	.....	173.23	.....	8.7
1888-94..	3,972,094	2,860,185,086	1,430,093	230,632,128	.....	161.31	.....	8.1
1862-94..	16,466,241	11,826,335,445	5,913,168	1,113,830,883	1,026,805,959	173.77	9.4	8.7
1867-94..	15,571,535	11,120,665,122	5,560,833	1,008,957,377	956,664,300	172.05	9.7	8.6
1867-78..	6,302,489	4,508,232,000	2,254,115	431,583,000	379,289,923	168.27	9.6	8.4
1879-86..	4,765,278	3,408,152,036	1,704,077	259,864,769	.....	181.71	.....	9.1
1887-94..	4,503,768	3,204,281,086	1,602,141	267,720,608	.....	167.10	.....	8.4
1867-78..	6,302,489	4,508,232,000	2,254,115	431,583,000	379,289,923	168.27	9.6	8.4
1879-82..	2,272,222	1,636,576,461	818,289	167,159,598	.....	204.28	.....	10.2
1883-94..	6,996,824	4,975,856,661	2,487,923	410,214,779	.....	164.88	.....	8.2
1867-80..	7,411,596	5,322,049,891	2,661,024	523,751,357	471,458,280	177.17	9.8	8.9
1881-94..	8,159,939	5,798,615,231	2,899,363	485,206,020	.....	167.35	.....	8.4
1876-78..	1,749,279	1,303,192,000	651,596	100,453,835	97,967,363	150.35	7.7	7.5
1893-95..	1,628,228	1,214,847,543	607,424	91,800,757	.....	151.13	.....	7.6

TABLE XII. (h).

An exhibit by years and certain periods of years of the acres of tobacco raised in the United States, its average yield per acre in pounds, together with its total farm or home value in dollars currency and its average home or farm value per pound, gold and currency.

YEARS.	Total Area in Acres.	TOTAL PRODUCT IN		TOTAL VALUE IN DOLLARS.		Average Yield per Acre in Pounds.	AVERAGE VALUE		
		Pounds.	Tons.	Currency.	Gold.		Per Pound in Cents.		Per Ton in Dolls., Gold.
							Cur.	Gold	
1862...	134,588	136,751,746	68,376	16,397,696	11,298,013	1016.1	11.1	8.3	165.23
1863...	216,423	163,353,082	81,677	24,239,609	15,586,068	754.8	14.8	9.5	190.83
1864...	239,826	197,460,229	98,730	29,335,225	13,582,209	823.3	14.4	6.9	137.57
1865...	236,363	185,316,953	92,658	23,348,013	16,670,481	784.0	12.5	9.0	179.97
1866...	520,107	388,128,684	194,064	53,778,888	39,957,714	746.2	13.8	10.3	205.90
1867...	494,333	313,724,000	156,862	41,283,431	29,806,637	634.6	13.1	9.5	190.02
1868...	536,000	402,000,000	201,000	46,612,000	34,353,044	750.0	11.5	8.5	170.91
1869...	634,000	393,000,000	196,500	41,265,000	34,002,360	650.7	10.5	8.7	173.04
1870...	575,000	385,000,000	192,500	38,500,000	34,765,500	669.6	10.0	9.0	180.60
1871...	580,000	426,000,000	213,000	41,748,000	38,282,916	734.5	9.8	9.0	179.73
1872...	584,600	480,000,000	240,000	49,920,000	44,279,040	821.1	10.0	9.2	184.50
1873...	653,000	506,000,000	253,000	41,998,000	37,672,206	774.9	8.4	7.4	148.90
1874...	500,000	315,000,000	157,500	34,650,000	30,803,850	630.0	11.0	9.8	195.58
1875...	710,000	522,000,000	261,000	41,760,000	36,999,360	735.2	8.0	7.1	141.76
1876...	733,000	535,000,000	267,500	39,590,000	37,254,190	729.9	7.4	7.0	139.27
1877...	745,000	580,000,000	290,000	40,600,000	39,991,000	778.5	7.0	6.9	137.90
1878...	580,000	429,200,000	214,600	34,336,000	34,336,000	740.0	8.0	8.0	160.00
1879...	638,000	472,000,000	236,000	49,560,000	.....	739.8	.....	10.5	210.00
1880...	610,000	460,000,000	230,000	50,600,000	.....	754.1	.....	11.0	220.00
1881...	646,239	449,880,014	224,940	43,372,336	.....	696.2	.....	9.6	192.82
1882...	671,522	513,077,558	256,539	43,189,951	.....	764.1	.....	8.4	168.75
1883...	638,739	451,545,641	225,773	40,455,362	.....	706.9	.....	9.0	179.19
1884...	724,668	541,504,000	270,752	44,160,151	.....	747.2	.....	8.2	163.11
1885...	752,520	562,736,000	281,368	43,265,598	.....	747.8	.....	7.7	153.41
1886...	750,210	532,537,000	266,269	39,468,218	.....	709.9	.....	7.4	148.23
1887...	598,620	386,240,000	193,120	40,977,259	.....	645.2	.....	10.6	212.18
1888...	747,326	565,795,000	282,898	43,666,665	.....	757.1	.....	7.7	154.39
1889...	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890...	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891...	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892...	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893...	702,952	483,023,963	241,512	39,155,442	.....	687.1	.....	8.1	162.13
1894...	523,103	406,678,385	203,339	27,760,739	.....	777.4	.....	6.8	136.52
1895...	633,950	491,544,000	245,772	35,574,220	.....	775.4	.....	7.2	144.74
1862-66	1,347,307	1,071,010,694	535,505	147,090,431	97,094,485	794.9	13.7	9.1	181.30
1867-70	2,209,333	1,493,724,000	746,862	167,660,431	132,927,541	676.1	11.2	8.9	177.85
1871-74	2,317,600	1,727,000,000	863,500	168,316,000	151,038,012	744.1	9.7	8.7	174.59
1875-78	2,768,000	2,066,200,000	1,033,100	156,286,000	148,580,550	746.5	7.5	7.2	143.82
1879-82	2,565,761	1,894,957,572	947,479	186,722,287	.....	738.6	.....	9.8	197.07
1883-86	2,866,137	2,088,322,641	1,044,162	167,349,329	.....	728.6	.....	8.0	160.28
1887-90	2,691,892	1,904,070,000	952,035	169,287,848	.....	707.3	.....	8.9	177.82
1891-94	2,452,110	1,779,404,696	889,702	133,832,362	.....	725.7	.....	7.5	150.42
1862-66	1,347,307	1,071,010,694	535,505	147,090,431	97,094,485	794.9	13.7	9.1	181.30
1867-73	4,026,933	2,905,724,000	1,452,862	301,326,431	253,161,703	721.5	10.4	8.7	170.43
1874-80	4,516,000	3,313,200,000	1,656,600	291,096,000	279,544,400	733.7	8.8	8.4	166.28
1881-87	4,782,518	3,457,520,213	1,718,761	294,888,875	.....	718.8	.....	8.6	171.57
1888-94	4,545,382	3,297,234,696	1,648,617	262,142,951	.....	725.6	.....	7.9	159.01
1862-94	19,218,140	14,024,689,608	7,012,345	1,296,553,638	1,186,832,414	729.8	9.3	8.5	169.25
1867-94	17,870,833	12,953,678,909	6,476,840	1,149,454,257	1,089,737,929	724.9	8.9	8.4	168.25
1867-78	7,294,933	5,286,924,000	2,643,462	492,262,431	432,546,103	724.7	9.3	8.2	163.63
1879-86	5,431,898	3,983,280,213	1,991,641	354,071,616	.....	733.3	.....	8.9	177.78
1887-94	5,144,002	3,683,474,696	1,841,737	303,120,210	.....	716.1	.....	8.2	164.58
1867-78	7,294,933	5,286,924,000	2,643,462	492,262,431	432,546,103	724.7	9.3	8.2	163.63
1879-82	2,565,761	1,894,957,572	947,479	186,722,287	.....	738.6	.....	9.9	197.07
1883-94	8,010,139	5,771,797,337	2,885,899	470,469,539	.....	720.6	.....	8.2	163.03
1867-80	8,542,933	6,218,924,000	3,109,462	592,422,431	532,706,103	728.0	8.2	8.6	171.32
1881-94	9,327,900	6,734,754,909	3,367,378	557,031,826	.....	722.0	.....	8.3	165.42
1876-78	2,058,000	1,544,200,000	772,100	114,526,000	111,581,190	750.3	7.5	7.2	144.26
1893-95	1,860,005	1,381,246,348	.....	102,490,401	.....	742.6	.....	7.2	148.40



TABLE XII. (i).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per pound and ton of the tobacco raised in the ten Mississippi Valley states, in the Exterior States, including all excepting the ten Mississippi Valley states, and in the nation, together with the weight in tons and its value in dollars, gold, of the annual per capita product of tobacco in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUE PER POUND IN CENTS.			GOLD VALUES PER TON IN DOLLARS.			PER CAPITA PRODUCT.	
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.
1862...	112	87	89	8.2	8.3	8.3	164.21	166.41	165.23	.....	.....
1863...	114	115	103	8.3	10.9	9.5	165.75	218.68	190.83	.....	.....
1864...	84	76	75	6.1	7.3	6.9	121.99	146.37	137.57	.....	.....
1865...	104	103	97	7.6	9.8	9.0	151.84	196.61	179.95	.....	.....
1866...	88	116	112	6.4	11.0	10.3	128.12	221.59	205.90	.....	.....
1867...	105	103	103	7.6	9.9	9.5	152.79	197.05	190.02	.004	.82
1868...	106	90	92	7.7	8.7	8.5	154.62	173.14	170.91	.005	.93
1869...	105	92	93	7.7	8.8	8.7	153.55	176.52	173.04	.005	.90
1870...	137	92	98	10.0	8.9	9.0	199.71	177.23	180.60	.005	.90
1871...	107	95	97	7.8	9.1	9.0	156.19	182.94	179.73	.005	.91
1872...	100	100	100	7.3	9.6	9.2	146.07	191.44	184.50	.006	1.09
1873...	81	80	80	5.9	7.7	7.4	118.56	154.01	148.90	.006	.90
1874...	120	105	106	8.7	10.0	9.8	174.69	199.37	195.58	.004	.72
1875...	69	78	77	5.1	7.4	7.1	101.47	148.73	141.76	.006	.84
1876...	84	70	75	6.1	7.2	7.0	122.46	143.19	139.27	.006	.82
1877...	79	74	75	5.8	7.1	6.9	115.03	141.58	137.90	.007	.86
1878...	64	89	87	4.7	8.5	8.0	93.99	170.59	160.00	.005	.80
1879...	86	118	113	6.2	11.0	10.5	124.87	219.15	210.00	.005	1.01
1880...	97	122	119	7.1	11.7	11.0	141.80	234.60	220.00	.005	1.01
1881...	118	103	105	8.6	9.8	9.6	171.86	196.52	192.82	.004	.84
1882...	104	88	91	7.9	8.5	8.4	158.76	169.94	168.75	.005	.82
1883...	114	95	99	8.3	9.1	9.0	166.31	181.68	179.19	.004	.76
1884...	107	85	88	7.8	8.2	8.2	156.08	164.19	163.11	.005	.80
1885...	108	80	80	7.9	7.6	7.7	157.75	152.97	153.41	.005	.78
1886...	103	77	80	7.5	7.4	7.4	150.90	147.67	148.23	.005	.69
1887...	128	112	115	9.4	10.8	10.6	187.39	215.22	212.18	.003	.70
1888...	109	80	84	7.9	7.7	7.7	158.73	153.67	154.39	.005	.72
1889...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893...	91	87	108	6.7	8.3	8.1	133.58	165.88	162.13	.004	.58
1894...	82	73	74	5.9	6.9	6.8	118.98	139.63	136.52	.003	.41
1895...	92	76	78	6.7	7.3	7.2	134.46	145.89	144.74	.....	.....
1862-66.	101	104	98	7.4	9.9	9.1	147.53	198.79	181.30	.....	.....
1867-70.	114	94	96	8.3	9.0	8.9	165.97	180.01	177.85	.005	.89
1871-74.	100	94	95	7.3	9.0	8.7	145.63	179.76	174.59	.006	.92
1875-78.	75	78	78	5.5	7.5	7.2	110.18	149.94	143.82	.006	.81
1879-82.	104	107	107	7.6	10.2	9.8	151.43	204.28	197.07	.005	.92
1883-86.	107	84	87	7.8	8.0	8.0	156.94	160.87	160.28	.005	.76
1887-90.	115	94	96	9.2	8.9	8.9	168.60	179.18	177.82	.004	.70
1891-94.	86	80	82	6.3	7.7	7.5	125.96	154.13	150.42	.004	.51
1862-66.	101	104	98	7.4	9.9	9.1	147.53	198.79	181.30	.....	.....
1867-73.	105	93	94	7.6	8.9	8.7	152.85	177.79	174.25	.006	.93
1874-80.	84	93	90	6.1	8.8	8.4	122.74	177.60	168.75	.006	.86
1881-87.	111	91	93	8.1	8.7	8.6	161.80	173.23	171.57	.004	.77
1888-94.	98	84	83	7.2	8.1	7.9	143.92	161.31	159.01	.004	.59
1862-94.	99	91	91	7.3	8.7	8.5	145.59	173.77	169.25	.....	.....
1867-94.	99	90	91	7.3	8.6	8.4	145.20	172.05	168.25	.005	.76
1867-78.	94	88	81	6.8	8.4	8.2	136.81	168.27	163.63	.006	.87
1879-86.	106	95	96	7.7	9.1	8.9	154.46	181.71	177.78	.005	.84
1887-94.	101	87	89	7.4	8.4	8.2	147.75	167.10	164.58	.004	.60
1867-78.	94	88	81	6.8	8.4	8.2	136.81	168.27	163.63	.006	.87
1879-82.	104	107	117	7.6	10.2	9.9	151.43	204.28	197.07	.005	.92
1883-94.	104	86	88	7.6	8.2	8.2	151.41	164.88	163.03	.004	.66
1867-80.	94	93	96	6.8	8.9	8.6	136.58	177.17	171.32	.006	.89
1881-94.	105	87	81	7.7	8.4	8.3	153.45	167.35	165.42	.004	.68
1876-78.	77	79	78	5.6	7.5	7.2	112.97	150.35	144.26	.006	.80
1893-95.	86	79	80	6.3	7.6	7.2	125.97	151.13	148.40	.004	.50



## CHAPTER XIII.

### CORN, OATS, WHEAT, BARLEY, RYE, BUCKWHEAT, POTATOES, HAY AND TOBACCO IN COMBINATION.

#### SIMPLE AVERAGE VALUES FOR THE UNITED STATES.

In Table XIII. (j) is presented an exhibit for the United States of the total quantity in tons and value in dollars of all the crops whose product and value have been reported by the United States Department of Agriculture most of the time since 1862, together with simple average values for the same. Of the nine crops whose reported figures are therein included, the Department of Agriculture never published any figures for rye, barley, buckwheat, hay, potatoes, and tobacco for 1889-92. Estimates for those years, made by the Minnesota Bureau of Labor in the manner already explained, are, for these six crops, here included in the totals of Table (j) and the other tables of this and the following chapter.

#### FALL OF PRICES.

A glance at Table (j) discloses the fact that the simple average farm or home value of these nine leading crops of the United States has declined for many years. If the currency values are taken as the basis of comparison, that decline has been continuous since the year 1862, when the Department of Agriculture began its systematic report of crop products and values. If the gold values are taken as the basis of comparison, that fall must be reckoned as beginning with 1867. The character and amount of that fall in the simple average values of these nine crops may be noted by the following condensed summary for seven-year periods:

YEARS.	AVERAGE VALUE PER TON.	
	Currency.	Gold.
1862-66 .....	\$22.81	\$14.69
1867-73 .....	21.93	18.37
1874-80 .....	16.25	15.62
1881-87 .....	15.30	15.30
1888-94 .....	13.76	13.76

## THE GREATEST FALL BEFORE AND NOT AFTER 1873.

The simple gold average value per ton in the United States in 1867 was \$20.31. In 1872 it was \$16.76; in 1878 it was \$12.60; in 1889, \$12.39; and in 1893, \$12.42. The last three named years are those with the lowest simple average values from 1867 to 1894. Here is a decline from 1867 to 1872 of \$4.55, and of \$4.34 per ton from 1872 to 1893. This decline may be stated in another way. In the eleven years, 1867 to 1878, there was a decline in simple average farm value of \$7.71 per ton, and from 1878 to 1893 of only eighteen cents. The general decline practically came to an end in 1878. This fact, which is very clearly shown in the detailed figures for the individual years given in Table (j), is in part concealed, in the summary given above, by the temporary advance in price which followed the large shipments of breadstuffs and meat products to Europe in 1879 to 1882. The year 1872 stands about midway in time between 1867 and 1878, and its simple average is practically a mean of the average farm gold values of those two years. Taking the year 1867, or the four or seven-year periods beginning with that year, as the basis of comparison, there has been a great fall in the gold and currency farm values in the United States. If gold farm values of 1862 are taken as such a basis, there has been an advance. In 1862 the simple average farm values of these nine crops was only \$9.73 a ton. From that date there was a continuous rise in average price. The averages were for the years 1862 to 1867 as follows: \$9.73, \$14.60, \$15.52, \$13.42, \$19.43, and \$20.31. The decline from 1867 to 1878 was therefore a decline from the exceptionally high price of 1867 to the prices that prevailed at the beginning of the Civil War, and in the year 1865, at its close.

## OBJECTIONS TO THE USE OF SIMPLE AVERAGES.

In the introduction to this report attention was called to the difficulties that always are found in obtaining a satisfactory average for any large group of statistical facts. The totals include so many and so diverse elements that it is difficult for an average to

take account of more than a few of them. This is especially the case with such simple averages as those found in Table (j), for the nation, and in Tables (b), and (e), (g), and (i). In the totals are included states near and remote from the final markets of consumption, and hence with comparatively high and low average prices. In those totals are also included crops, such as tobacco and wheat, of a high average value per ton, and those like hay and corn, of a lower value. In the passage of the thirty-four years covered by the tables there has been a greater relative increase in the cultivation of the soil in the regions most remote from final market, and hence with lower average farm values. There has also been a greater relative increase in the production of hay, corn, and the other cheaper farm products. All these facts tend to lower the simple average value per ton. They have been very influential in so lowering that average. In fact, over one-half of the decline shown in Table (j), and summarized at the beginning of this chapter, is due to that cause. This can be seen by comparing the decline in the simple average value in the nation, as already given, and the corresponding decline in the simple and corrected average value of the seventeen selected states whose detailed statistics have been given. The following exhibit shows this fact, giving the simple average farm value per ton in the seventeen states and in the nation, and the corrected values for the nation.

YEARS.	SIMPLE AVERAGE VALUE PER TON.		Corrected Values, Seventeen States.
	Nation.	Seventeen States.	
1862-66 .....	\$14.69	\$14.17	\$14.30
1867-73 .....	18.37	17.19	16.61
1874-80 .....	15.62	14.74	14.28
1881-87 .....	15.30	14.58	14.87
1888-94 .....	13.76	13.29	13.87

In the seventeen states the decline from 1867 to 1894 was for the simple average values \$3.90; for the nation it was \$4.61. For the seventeen states the corrected values show a decline of \$1.74, or only forty-five per cent as much as the decline in the simple average values. The decline in the simple average values in the nation is greater than in the seventeen states mainly because the statistics of the nation include more of the factors producing this apparent price decline. Thus the nation includes the figures for the two Dakotas, producing vast quantities of wheat, oats, and other cereals at a low figure. It includes many of the other new

states, with their cheap farm products. The effect upon statistics of this great increase in the production in remote sections in causing an apparent decline in average prices must therefore be greater in the nation than in these seventeen states. To have calculated corrected average values for the nation would have increased the work of this report over two-fold, and have added nothing material to its conclusions. The seventeen states given in detail have produced in thirty-four years eighty per cent of the crops of the nation. They are a fairly correct measure of the price movement of the agricultural staples of the United States. They show conclusively that over fifty-five per cent of the decline in average gold farm values shown for the nation in Table (j) is apparent only, and caused by the increase in the production of farm staples in the newer and more remote sections of the Union, and the greater increase in the cheaper staples, such as hay and corn. The actual decline of farm prices in the United States indicated by the corrected values for the seventeen states was from 1862 to 1894 forty-three cents a ton, or three per cent, and from 1867 to 1894 was \$1.74, or a little over ten per cent. The comparison to obtain the foregoing results were made between the seven-year periods beginning and closing with the years named.

#### COMPARISONS WITH THE YEAR 1872.

If comparisons are made with the year 1872, as are done by the index numbers, it is found that the corrected average value for the years 1862 to 1866 was three per cent below the corresponding average for 1872, and the averages for the four and seven-year periods ending with 1894 were both six per cent below that of 1873 and three per cent below that for the period 1862 to 1866. The periods ending with 1894, however, exhibited a simple average farm gold value of only one per cent below that of 1875 to 1878. The corrected values for the latter of these two periods were, however, twelve per cent above that of the four years ending with 1878.

#### CORRECTED VALUES AS A MEASURE OF THE AVERAGE PRICE MOVEMENT.

How far can corrected average values, such as those included in this report, be properly taken as a measure of the real price movement of agricultural staples in a country such as the United States? Some consideration can well be given to such a question as this. In referring to this subject it is best to repeat in substance what is given more at length in the introductory chapter relating to these corrected values. These values are obtained by the follow-



ing method, best stated by a concrete case. Of corn it was found that in thirty-three years there was produced the following number of bushels:

In Ohio.....	2,868,478,336	In Indiana.....	3,232,878,911
In Illinois.....	6,380,643,110	In Michigan.....	714,846,106
In Wisconsin.....	753,468,127	In Missouri....	3,918,395,373
In Iowa.....	5,186,835,106	In Minnesota.....	433,947,702
In Nebraska.....	1,855,361,255	In Kansas.....	2,589,135,617

The average gold farm value in cents for corn in the period 1862 to 1886 was: In Ohio, 37.9; Indiana, 31.9; Illinois, 27.5; Michigan, 46.6; Wisconsin, 40.1; Missouri, 32.3; Iowa, 24.6; Minnesota, 38.7; Nebraska, 42.5, and Kansas, 35.6. The average value for the quantities mentioned above at the given values was 31.9 cents a bushel. This is the corrected farm value for corn in the ten states for the period 1862 to 1866. In the same way the corrected values for corn in each and all the years and periods given are obtained by combining the same quantities in the states named above at the prices in those states in the period or year calculated. The corrected values for three, six, or nine crops are obtained by taking the corrected values for the included crops and combining them in the proportions by weight in which the several crops have been produced in thirty-three years. The average values thus secured, better than any other test, subject to the limitation stated in the next paragraph, in the opinion of the commissioner in charge of this investigation, measures, excepting for the period 1862 to 1866, the price movement of agricultural staples, as that movement relates itself to the changing purchasing power of money. These corrected averages express the changing values of a fixed quantity of the great staples of the farm; and the quantities used are not chosen arbitrarily, but are those which express the relative production of those staples in the several states. But while for the purpose of ascertaining the relation of the average price movement of agricultural staples to the changing purchasing power of gold these corrected average values are valuable and reliable tests, it is folly to extend that use for other purposes. For other purposes they may be, and will be, as are most other general averages, most deceptive and misleading. This is especially the case with that subject of supreme economical importance, the effect of changing agricultural prices upon the welfare of the farmers as a whole.

#### THE IMPERFECTION OF THE CORRECTED AVERAGE VALUES OF THIS REPORT.

The corrected values in this report for 1862 to 1866, in the groups of seven and seventeen states, though mathematically correct

in theory, may be very misleading. They are the best possible illustration of the way in which figures may lie. In the group of seven states are included New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California. Of these states the Agricultural Department secured statistics, for the whole five years, 1862 to 1866, only for two, New York and Pennsylvania. Figures are given for California only for 1862, which was a high-priced year in that state. They are given in Virginia, Texas, and Georgia only in 1866, a year of crop failure and high price,—almost as high as the very exceptional year 1867. Kentucky figures are given only for the years 1864, 1865, and 1866. In the Southern States, disturbed by the war, the amount of crops produced was small in 1866, and this further temporarily enhanced prices. The calculation for corrected values gives, for this small relative amount of agricultural product, in these Southern States and California, of a single year, the same relative importance as for nearly ten times as much that was produced in those states in an average four-year period, whose figures are given complete by the Agricultural Department. Hence it is found, that, in the group of seven states, for all the crops, the corrected average values are higher than the simple values. The corrected values here given for 1862 to 1866 in that group, and also in that of seventeen states, approximate, for the reasons stated, those of 1866, and not the true average value of the five years, 1862 to 1866, and for that cause are misleading to a certain extent. The true average for that period is in every case for the groups of seven and seventeen states best expressed by the simple average value, although that is above a true average. This is to a certain extent the case also with the group of ten states, owing to the fact that in that group the method for calculating the corrected values multiplies by ten the true influence upon price movement of the exceptionally high prices that prevailed in Kansas and Nebraska down to about 1873, when those states ceased to import farm staples for home consumption and began to be shippers of such staples. The corrected values for 1867 to 1866 represent an average of prices above what actually existed, or as that average would appear were there included in the tables figures for all the states for all the years in that period. The error thus included in the corrected values for 1862 to 1866, and to a very small extent in one or two other periods, is not found so fully in the calculation for the index numbers given in the last column of Tables (c), (f), and (h). They are the index numbers calculated according to the relative importance of the several crops in the several states which are included

in the tables. They are the index numbers obtained by Mr. Sauerbeck's second method for correction. These index numbers, by reason of the method of the calculation, best express

THE INFLUENCE OF CHANGING AGRICULTURAL PRICES UPON THE FARMERS.

The calculation for securing those numbers include in each state and for each crop quantities of product that correspond to those raised in each year and period, and that at the prices which prevailed in the given year or period. Those numbers, therefore, do not magnify the influence of the small quantity of the several crops raised in Nebraska, Kansas, and California in a single year of the period 1862 to 1866, as do the corrected values. They show the full extent of the rise of prices that took place in the period 1867 to 1870, as compared with earlier average prices. It is in this earlier period in which the index numbers for corrected values differ most widely from those calculated according to relative importance, and for the reasons already explained. The index numbers calculated according to the relative importance of the several crops express the ratio between the actual gold values of the several years and periods and the value of those crops had the same quantity of each been sold in the several states at the price which prevailed in those states in 1872. They do not express a price movement of a fixed quantity as do the corrected average values, but of a quantity that changes exactly as the quantities of the several crops are reported by the Department of Agriculture. Would we know the effect of changing agricultural prices upon the farmers of the United States, we can turn to the index numbers calculated according to relative importance, and found in Tables (c), (f), and (h). A summary of these index numbers, and those of the price movement as it affects the farmers of the ten, seven, and seventeen selected states, is here given for seven-year periods:

YEARS.	INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.		
	Ten States.	Seven States.	Seventeen States.
1862-66 .....	95	79	88
1867-73 .....	115	101	108
1874-80 .....	103	86	96
1881-87 .....	110	86	100
1888-94 .....	105	78	94



Here is found, when comparing the years 1867 to 1887 with the seven years ending with 1894, a decline in the ten states of ten points, in the seven states of twenty-three points, and in the seventeen states of fourteen points. But while there is this decline when comparing the last seven-year period with the period of exceptionally high prices that began with 1866 and practically ended with 1874, there is but one of the three groups that show a decline when comparison is made with the earlier five-year period, 1862 to 1866, and that of only one point. The price movement according to relative importance in the ten states rose from 95 in 1862 to 1866 to 105 in 1888 to 1894. In the seventeen states there was a corresponding rise from 88 to 94. The figures for the ten states measure the improved condition of the farmers of the Mississippi Valley as a whole, so far as that condition has been affected by changing prices from 1862 to 1894. The figures for the seventeen states practically do the same for the farmers of the nation. The financial condition of those farmers has improved, therefore, when comparisons are made between the present and the war times, and it has declined when comparisons are made with that of the years of exceptionally high prices, 1867 and 1881.

#### THE RISE OF PRICES IN 1881 AND THEIR SUBSEQUENT FALL.

Attention has repeatedly been called in this report to the high prices of 1879 to 1882. Those prices, as well as those of 1867 to 1873, recorded a temporary advance from previous conditions, an advance which was exceptional and produced by transient causes. This can better be seen by comparing the index numbers and corrected values by four-year periods for the several groups as found in Tables (c), (f), and (h). A summary of the index numbers according to relative importance is here presented by these four-year periods:

YEARS.	INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.		
	Ten States.	Seven States.	Seventeen States.
1862-66 .....	95	79	88
1867-70 .....	120	98	110
1871-74 .....	114	103	109
1875-78 .....	94	81	89
1879-82 .....	124	94	112
1883-86 .....	97	81	91
1887-90 .....	108	80	97
1891-94 .....	104	76	95



In the ten states the average price in 1879 to 1882, as shown by the index numbers given above, rose thirty-three points, or thirty-six per cent above those of the preceding four years. Immediately after those four years, 1879 to 1882, there was a fall in the ten states of twenty-six points. This represents, as may be seen from the corrected average values in Table (c), a decline of \$3.61 a ton on the average of about eighty millions of tons which are annually raised of these nine crops in the ten states of the Mississippi Valley whose detailed statistics are included in these tables. The income of the farmers of the nation was reduced as compared with the boom period of 1879 to 1882 by nearly \$300,000,000 annually. But this decrease was not so great actually or relatively as was the advance which 1879 to 1882 recorded over the four years that immediately preceded, or over the four years 1862 to 1866.

The seven states experienced an advance of average prices in 1879 to 1882 the same as did the ten, although that advance was not quite so great. They also had a fall after 1882. That fall at once brought prices to the average of 1875 to 1878, while those of the ten states did not decline to that extent. This decline after 1882 was greater in Georgia and California than in New York and Pennsylvania. In fact, California had not experienced the rise of 1879 to 1882, and has had a continuous fall from 1874, as may be seen in Table (d).

#### THE RISE OF PRICES IN 1881 GREATER THAN IN 1867.

The exceptional factor found operative in the United States, raising prices in 1879 to 1882, increased the prices in the Mississippi Valley more relatively than did the causes producing high prices from 1866 to 1874. This may be seen by noting the index numbers and simple or corrected values for the nine crops in the Mississippi Valley and in the seventeen states for the two periods 1867 to 1870 and 1879 to 1882.

In the tables can be traced the influence of many transient factors tremendously affecting prices, now raising and now depressing them; but no trace can be found of any force continuously active, for the nation as a whole or for the Mississippi Valley, and greatly depressing farm values permanently. In the states of that valley there has been, with a few exceptions, a slight continuous upward price movement for thirty years. That continuous upward movement has been broken and interrupted by the periods of exceptionally high and low prices to which attention has been called, and that is all. It is the same for the seventeen states, which represents fairly well the price movement of the nation as a whole.

## RELATION OF PRICES TO THE QUANTITY OF PER CAPITA PRODUCT.

In preceding chapters attention has been called to the tendency of prices to so adjust themselves to a changing per capita product as to maintain a substantial uniformity of the value of the annual average of that product. In other words, there is a substantial truth in the common and universal remark among the farmers that they always obtain the same sum for a large as for a small crop. Using the average yield for corn as given in Table (j), and the per capita product as given in Table (k), we obtain, by calculations previously explained, the weight and value of the corrected and approximately correct average annual per capita product of these nine crops in the United States from 1867 to 1894 by seventeen periods.

YEARS.	Average Yield per Acre in Tons.	Simple Average Gold Value per Ton.	PER CAPITA PRODUCT.			
			As Reported by Agricultural Department.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1862-66.....	.842	\$14.69	.....	.....	.....	.....
1867-73.....	.755	18.37	1.761	\$32.50	1.673	\$30.87
1874-80.....	.751	15.62	2.006	31.20	1.906	29.64
1881-87.....	.678	15.30	2.130	32.59	2.236	34.22
1888-94.....	.711	13.76	2.110	29.05	2.131	29.34

Comparing the high-priced period of 1867 to 1873 with that which follows, there was a great decline in simple average prices, but one that was nearly balanced by the increase in the weight of the per capita product. This gave an average value to the per capita product in the period 1891 to 1894 about the same as in the years 1874 to 1880, and only \$1.50 less than in 1867 to 1873. The annual average value of the product for the years of special foreign export demand, 1881 to 1887, was over four dollars greater than the general average for twenty-eight years. We have here again a measure of the special benefit, that, in the years 1878-81, and for a short time thereafter, came to the farmers of the United States as the result of factors enhancing prices that arose and were specially operative for a few years at that time.

The foregoing exhibit of the value and weight of the average per capita product is to be taken as only tentative and partially correct. The average yield per acre includes many crops, some with a heavy and some with a light product per acre. There has

been a greater change in the methods of reporting some of these crops than of others. The calculations above given for correcting this weight and value of the per capita product only eliminates a portion of the resulting error. If wholly corrected it would show an absolute increase in the value of the per capita product in the last seven-year period over the first one in the table.

A more correct estimate of the relative changing values of the per capita product can be obtained by multiplying the weight as given in the last summary by the corrected average value of the seventeen states as found in Table (h). Multiplying this, we have the following results:

YEARS.	Corrected Average Value Per Ton for Seventeen States.	PER CAPITA PRODUCT.	
		Weight in Tons.	Value.
1867-73 .....	\$16.61	1.673	\$27.79
1874-80 .....	14.28	1.906	27.22
1881-87 .....	14.87	2.236	33.25
1888-94 .....	13.87	2.131	29.56

Here is disclosed a marked advance in the relative value of the per capita product as calculated from the corrected values in the seventeen states. With an increasing weight of that product of farm staples, and its consequent tendency to depress prices, there is an upward general movement of prices that causes the corrected value of that product to show a marked advance in the latter over the earlier years.

A study of the figures relating to the per capita product of these nine crops leads to the same conclusion, therefore, as that previously drawn from a review of the calculated average gold farm values and index numbers calculated according to relative importance. There has been and is in the United States, as the result of changing railway rates and other local causes depressing prices, a marked local fall of prices in the seaboard states, and especially those of the Pacific and Gulf coasts. There has been, however, no general or universal fall of farm prices in the United States as a whole in thirty-five years. Instead there has been an actual advance when comparing the years 1862 to 1867 or 1875 to 1878, with the seven or four years ending with 1894. There have in the thirty-four years ending with 1895 been years of exceptionally low prices, such as 1895, and years of remarkably high prices, such as 1867 and 1881. The high and low prices have been produced by transient causes, and such causes repeating themselves will in the



future as in the past lead to the repetition of the same. Beyond these deductions and the explanation of the causes for the specially high and low priced years we cannot legitimately go. It will not do to predicate a universal fall of prices, and thus an appreciation in the purchasing power of gold, by reason of the local fall of agricultural prices in such a state as Georgia, any more than we are justified in claiming a depreciation of fifteen per cent in such purchasing power of gold by reason of the advance in general price in such states as Iowa and Illinois, as shown by the tables of this chapter. The group of seven seaboard states, whose detailed statistics are given in these tables, measured by any test, show, in contrast with the states of the Mississippi Valley, a general though broken decline in prices from 1874 to date, as may be noted in the summaries already presented. This decline of prices in one section and a rise in others marks the operation of a local cause, and not one of the universal influence. That cause is not difficult to ascertain.

#### THE INFLUENCE OF CHANGING RAILWAY RATES

explains all the price decline in one section and the rise in the other. The fact that the average price as shown by the index number given in the last summary rose in the ten states from 91 in 1875-79 to 104 in 1891-94, while in the seven seaboard states it fell from 81 to 76 at the same time, shows that there is a readjustment of farm values going on by which the effect of reduced railway freight rates is divided about evenly between the two sections. There is a great and continuous fall in average farm prices on the seaboard of the American Union, and especially in California and the Southern States. There has been a rise in the central northern portion of the Mississippi Valley,—the center of all agricultural production for the United States, and the dominating factor in fixing the world's agricultural prices. The increase of general average prices in the Mississippi Valley, and the decline in the seaboard states, and the effect of changing railway rates upon local prices can best be noted by comparing the corrected gold average farm values of states like Iowa, Illinois, Virginia, and California, and Georgia, by seven-year periods as is done in the following summary:



YEARS.	CORRECTED AVERAGE GOLD FARM VALUES PER TON.				
	Iowa.	Illinois.	Virginia.	California.	Georgia.
1862-66.....	\$9.36	\$11.14	\$27.32	\$24.98	\$36.08
1867-73.....	10.43	13.12	26.37	27.37	28.18
1874-80.....	9.23	12.55	21.76	23.80	27.15
1881-87.....	10.64	13.79	29.93	19.38	25.67
1888-94.....	10.58	12.76	20.37	16.55	23.08

In two of these states, Iowa and Illinois, there is no trace found of a general or permanent price decline, but in the others it is different. There is a decline of about twenty-five per cent in Virginia and of not far from thirty-three per cent in the other two states. The average value in Illinois and Iowa in the seven years ending with 1894 was over a dollar a ton, or about fourteen per cent greater than in five years beginning with 1862. These figures mark the economical significance of the effect of changing freight rates upon the different sections of our common country. They show in part why agricultural emigration has for twenty-five years been steadily moving into the new Northwest, and not into the old South. They show why farmers at the present time in the South are so much more disturbed and discontented with economical and financial conditions than those of Iowa and Illinois. Agriculture in the South as a whole is suffering greatly from the results of changing railway rates and kindred local changes affecting farm prices and values. The two States of Georgia and California suffer more than New York and Pennsylvania. This can be seen by comparing the corrected average values in those states as is done in the following summary:

YEARS.	CORRECTED AVERAGE GOLD FARM VALUES PER TON.			
	New York.	Pennsylvania.	Georgia.	California.
1862-66.....	\$13.99	\$17.59	\$36.08	\$24.98
1867-73.....	18.83	21.87	28.18	27.37
1874-80.....	15.09	18.16	27.15	23.80
1881-87.....	15.83	18.42	25.67	19.38
1888-94.....	14.33	17.27	23.08	16.55

Since 1874 the average of farm values in New York and Pennsylvania, taking seven-year periods for comparison, have fallen but a fraction of what they have in the other two states. This shows how the extreme South and the Pacific slope as a whole have suf-

ferred more from recent economical changes affecting agriculture than has the old East of the nation. In some way the East better than the South has adjusted itself to the effect of changing railway rates, and as a result, that section suffers less therefrom. To understand how this has been done, it is necessary to comprehend the general effect of changing railway rates upon the prices of these several agricultural staples in the several sections of our country.

#### EFFECT OF CHANGING RAILWAY RATES UPON FARM PRICES.

Upon one of the graphic plates presented with this report there is given an illustration of the contrast between the price movements in Iowa and New York. In New York it is seen how there has been a tendency to bring all of the farm staples, excepting tobacco, together. It costs but little more to ship a ton of wheat from Iowa to New York than to ship a ton of hay. The ton of hay will not, with its lower average price, bear the cost of transportation a thousand miles, as will the dear-priced wheat. It has not been shipped a long distance save in exceptional years. Hay prices in the East have, therefore, not been affected by changing railway rates as have those of the dear-priced grains. As the result hay prices have been increased in nearly all the states of our Union. They have increased at about the same ratio as corn in Iowa and Illinois. In those hay prices we see the universal tendency of farm prices in the United States to advance, excepting where they have been disturbed by changing railway rates or other local causes. The same effect can be noted in the case of potatoes, which are but little shipped for long distances. These have advanced in farm values, and other crops have declined in the seaboard states, and with but few exceptions have advanced in the Central Mississippi Valley states, when the four or seven years ending with 1894 are compared with the five-year period beginning with 1862. In the graphic plate for Iowa and New York it is seen how in Iowa there is an upward or stationary price movement for all crops. In New York there was a fall for all excepting hay and potatoes. The fall of the others and the rise of hay and potatoes brings the average prices nearer together than at the beginning. In 1867-70 the price of wheat in New York was \$48.09 per ton, and that of hay \$12.98. In 1891 to 1894 the value of wheat was \$27.85, and that of hay was \$10.76. These values in New York stand in contrast with those of Iowa. In that state the prices for the earlier and later periods were for wheat \$24.23 and \$20.70. The corresponding values for hay were \$5.68 and \$6.51. In 1867 to 1870 the average values of wheat and hay in New York were separated by

the sum of \$25.09 and in the latter period of 1891 to 1894 by only \$17.09. In Iowa in the earlier years the two crops had a difference in average values of \$18.55, and in the latter of \$14.19. In both states there was a tendency to bring prices together. The force of this tendency in New York was about twice as great as in Iowa, as is shown by the foregoing figures. By reducing the relative quantities of the high-priced wheat raised and increasing the production of hay the New York farmers have lessened in part the disaster that follows the change in prices due to reducing freight rates. The Southern farmer, maintaining the older system of crops with but slight relative change, suffers the full measure of the losses resulting from this modern innovation in transportation charges.

TABLE XIII. (a).

An exhibit by states, for various years and periods of years, from 1862 to 1895, inclusive, of the total product in tons of the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total home or farm value of the same in currency and its simple and corrected average home or farm value per ton in gold and currency and index numbers, calculated in different ways, showing the percentage which the average gold value each year or period was of the average gold value in the same tables for the year 1872.

## OHIO.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Currency.	Gold.	Corrected Values.	To Corrected Av'rge Values.	Av'rge Nine Crops.	According to Relative Importance.
1862-66.....	25,605,147	580,195,503	22.66	14.37	14.34	85	92	87
1867-70.....	21,628,795	492,740,360	22.78	18.04	18.28	109	117	112
1871-74.....	22,284,779	434,559,503	19.50	17.53	18.15	109	110	110
1875-78.....	26,783,811	402,823,148	15.04	14.31	14.83	89	94	90
1879-82.....	28,767,305	562,992,596	.....	19.57	18.63	111	113	109
1883-86.....	30,131,237	436,302,937	.....	14.48	14.16	81	93	86
1887-90.....	28,168,409	434,238,747	.....	15.42	15.61	92	98	91
1891-94.....	29,861,876	433,363,278	.....	14.52	14.53	86	89	81
1862-66.....	25,605,147	580,195,503	22.66	14.37	14.34	85	92	87
1867-73.....	38,509,460	803,303,741	20.86	17.38	18.12	109	113	109
1874-80.....	47,380,001	797,960,841	16.84	16.17	16.12	95	98	91
1881-87.....	50,605,138	838,649,322	.....	16.57	16.63	99	104	96
1888-94.....	51,131,013	757,106,665	.....	14.51	15.83	88	92	85
1862-94.....	213,231,359	3,777,216,072	17.71	15.90	15.90	95	100	95
1876-78.....	20,896,053	302,182,548	14.46	14.10	14.05	84	89	88
1893-95.....	19,985,706	267,487,169	.....	13.38	13.06	77	81	73
1862.....	5,446,235	87,166,496	16.00	11.02	10.70	65	71	62
1872.....	5,804,580	101,627,500	17.51	15.53	16.81	100	100	100
1895.....	5,566,481	70,960,572	.....	12.74	12.77	76	72	70

Percentage 11.74.

## INDIANA.

1862-66.....	21,671,195	447,381,532	20.64	13.11	13.59	92	98	96
1867-70.....	18,226,484	385,759,325	21.16	16.76	17.21	116	118	121
1871-74.....	15,658,183	289,671,068	18.50	16.64	16.31	109	115	106
1875-78.....	21,457,900	301,642,517	14.06	13.38	13.55	91	97	94
1879-82.....	24,488,169	464,347,330	.....	18.96	17.73	119	121	116
1883-86.....	27,864,578	359,512,317	.....	12.90	13.22	89	94	88
1887-90.....	26,153,671	386,017,171	.....	14.75	14.83	100	104	98
1891-94.....	30,188,228	410,095,477	.....	13.58	13.84	93	96	90
1862-66.....	21,671,195	447,381,532	20.64	13.11	13.59	92	98	96
1867-73.....	30,008,505	595,327,315	19.84	16.52	16.76	113	115	119
1874-80.....	38,349,448	611,941,960	15.96	15.32	14.89	100	104	101
1881-87.....	45,631,177	692,009,194	.....	15.17	15.24	102	103	100
1888-94.....	50,047,983	697,766,736	.....	13.94	14.06	95	99	91
1862-94.....	185,708,308	3,044,426,737	16.39	14.84	14.84	100	104	100
1876-78.....	16,747,305	226,366,967	13.51	13.18	13.21	89	95	92
1893-95.....	20,022,110	239,174,282	.....	11.95	11.12	80	89	80
1862.....	4,301,833	55,602,105	12.92	8.90	8.90	60	70	61
1872.....	4,160,561	67,703,590	16.03	14.22	14.85	100	100	100
1895.....	5,614,271	59,455,443	.....	10.59	11.37	77	60	79

Percentage 10.23.



TABLE XIII. (a).—Continued. \*

## ILLINOIS.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Curr- ency.	Gold.	Cor- rected Values.	To Cor- rected Av'r'ge Values.	Av'r'ge Nine Crops.	Accord- ing to Rel'tive Import- ance.
1862.....	7,684,448	85,154,864	11.08	7.64	.....	.....	.....	.....
1863.....	5,549,327	123,916,829	22.33	14.36	.....	.....	.....	.....
1864.....	7,633,545	214,488,426	28.10	13.01	.....	.....	.....	.....
1865.....	9,007,744	116,274,321	12.91	9.22	.....	.....	.....	.....
1866.....	8,253,617	160,148,704	19.40	14.42	.....	.....	.....	.....
1867.....	7,242,406	179,128,260	24.73	17.86	.....	.....	.....	.....
1868.....	7,973,840	137,981,530	17.30	12.75	.....	.....	.....	.....
1869.....	7,937,292	138,342,380	17.43	14.36	.....	.....	.....	.....
1870.....	9,340,162	137,613,732	14.73	13.30	.....	.....	.....	.....
1871.....	9,238,406	133,017,748	14.40	13.20	.....	.....	.....	.....
1872.....	9,863,418	116,545,280	11.82	10.48	.....	.....	.....	.....
1873.....	8,074,354	117,998,170	14.61	13.11	.....	.....	.....	.....
1874.....	7,721,988	148,913,105	19.28	17.14	.....	.....	.....	.....
1875.....	13,516,080	179,791,500	13.30	11.79	.....	.....	.....	.....
1876.....	11,633,790	135,918,850	11.68	10.99	.....	.....	.....	.....
1877.....	13,692,713	155,615,660	11.36	11.19	.....	.....	.....	.....
1878.....	12,110,125	115,122,385	.....	9.51	.....	.....	.....	.....
1879.....	14,016,176	192,139,295	.....	13.71	.....	.....	.....	.....
1880.....	12,620,664	193,969,298	.....	15.87	.....	.....	.....	.....
1881.....	10,316,392	210,529,312	.....	20.41	.....	.....	.....	.....
1882.....	12,263,141	203,228,757	.....	16.57	.....	.....	.....	.....
1883.....	12,842,786	168,863,197	.....	13.15	.....	.....	.....	.....
1884.....	13,901,346	150,710,290	.....	10.84	.....	.....	.....	.....
1885.....	14,345,182	149,033,407	.....	10.39	.....	.....	.....	.....
1886.....	13,252,237	146,033,658	.....	11.02	.....	.....	.....	.....
1887.....	9,745,808	146,961,245	.....	15.08	.....	.....	.....	.....
1888.....	16,106,454	186,589,426	.....	11.58	.....	.....	.....	.....
1889.....	14,753,531	154,951,372	.....	10.50	.....	.....	.....	.....
1890.....	10,958,242	163,971,135	.....	14.96	.....	.....	.....	.....
1891.....	12,742,049	180,861,261	.....	14.19	.....	.....	.....	.....
1892.....	10,018,100	135,391,712	.....	13.51	.....	.....	.....	.....
1893.....	9,900,667	116,816,503	.....	11.80	.....	.....	.....	.....
1894.....	10,555,294	142,228,493	.....	13.47	.....	.....	.....	.....
1895.....	10,686,714	97,536,216	.....	9.13	.....	.....	.....	.....
1862-66.....	38,128,681	699,983,144	18.36	11.53	11.14	104	101	98
1867-70.....	32,493,700	593,065,902	18.25	14.44	14.37	134	128	127
1871-74.....	34,898,166	516,474,303	14.80	13.28	13.08	122	125	120
1875-78.....	50,952,708	586,448,395	11.51	10.90	11.25	105	102	105
1879-82.....	49,216,373	799,866,662	.....	16.25	15.59	145	137	140
1883-86.....	54,341,551	614,640,552	.....	11.31	11.84	111	106	113
1887-90.....	51,564,035	652,473,178	.....	12.65	12.71	119	117	119
1891-94.....	43,216,413	575,297,969	.....	13.31	13.20	123	116	124
1862-66.....	38,128,681	699,983,144	18.36	11.53	11.14	98	101	98
1867-73.....	59,669,878	960,627,100	16.13	13.44	13.12	122	122	121
1874-80.....	85,311,536	1,121,470,093	13.15	12.59	12.55	117	114	116
1881-87.....	86,666,891	1,175,359,866	.....	13.56	13.79	129	121	128
1888-94.....	85,034,641	1,080,809,902	.....	12.71	12.76	119	115	120
1862-94.....	354,811,627	5,038,250,105	14.20	12.90	12.90	120	118	118
1876-78.....	37,436,629	406,656,895	10.86	10.59	10.71	100	102	102
1893-95.....	31,142,676	356,581,112	.....	11.45	11.30	100	103	111
1862.....	7,684,448	85,154,864	11.08	7.64	7.37	69	76	64
1872.....	9,863,418	116,545,280	11.82	10.48	10.73	100	100	100
1895.....	10,686,711	97,536,116	.....	9.13	9.81	92	89	93

Percentage 19.54.

TABLE XIII. (a).—Continued.

## MICHIGAN.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE, PER TON IN DOLLARS.			INDEX NUMBERS.		
			Currency.	Gold.	Corrected Values.	To Corrected Av'r'ge Values.	Av'r'ge Nine Crops.	According to Relative Importance.
1862-66.....	10,990,956	280,270,312	25.50	16.20	16.77	82	87	85
1867-70.....	11,212,055	267,745,760	23.88	18.92	20.14	105	111	105
1871-74.....	8,982,737	207,094,650	23.05	20.74	20.68	108	111	108
1875-78.....	12,019,867	220,959,301	18.38	17.49	17.29	90	96	91
1879-82.....	13,706,802	290,409,467	.....	21.18	19.64	100	107	100
1883-86.....	15,949,955	245,916,505	.....	15.42	15.24	79	87	79
1887-90.....	14,568,752	241,557,568	.....	16.58	16.67	87	95	89
1891-94.....	17,153,159	249,885,673	.....	14.57	14.91	78	85	80
1862-66.....	10,990,956	280,270,312	25.50	16.20	16.77	82	87	85
1867-73.....	18,014,451	423,613,109	23.51	19.58	20.35	106	109	106
1874-80.....	20,734,225	409,942,769	19.77	18.08	17.61	92	99	93
1881-87.....	26,558,901	453,762,778	.....	17.09	16.87	83	96	87
1888-94.....	28,285,750	436,270,275	.....	15.42	15.64	71	87	84
1862-94.....	104,584,283	2,003,859,234	19.16	17.35	17.36	91	96	91
1876-78.....	9,082,594	159,665,851	17.58	17.14	16.46	81	92	93
1893-95.....	11,429,777	149,742,975	.....	13.10	13.31	69	76	73
1862.....	2,301,557	34,723,069	15.08	10.39	10.83	56	65	56
1872.....	2,302,684	48,109,460	20.89	18.33	19.12	100	100	100
1895.....	3,296,894	39,916,769	.....	12.11	13.68	71	69	63

Percentage 5.76.

## WISCONSIN.

1862-66.....	11,407,838	248,010,559	21.74	13.81	13.23	90	96	86
1867-70.....	11,451,919	242,286,526	21.16	16.74	16.63	113	127	107
1871-74.....	11,939,303	216,902,185	18.17	16.32	15.86	108	112	106
1875-78.....	17,675,969	213,992,480	12.11	11.50	12.18	83	90	82
1879-82.....	16,310,945	284,092,870	.....	17.42	16.85	115	126	116
1883-86.....	18,353,433	239,425,891	.....	13.03	13.10	89	100	91
1887-90.....	17,234,939	248,673,301	.....	14.43	14.52	99	110	101
1891-94.....	19,802,384	251,729,821	.....	12.71	13.26	90	95	93
1862-66.....	11,407,838	248,010,559	21.74	13.81	13.23	90	96	86
1867-73.....	20,762,779	410,384,586	19.78	16.50	16.05	109	115	106
1874-80.....	27,958,293	393,272,862	14.07	13.52	13.56	93	104	93
1881-87.....	30,548,837	448,237,179	.....	14.67	14.70	100	112	101
1888-94.....	33,498,983	445,208,447	.....	13.29	13.73	94	100	96
1862-94.....	124,176,730	1,945,113,633	15.67	14.26	14.26	96	105	97
1876-78.....	14,322,049	155,035,630	10.82	10.55	11.49	78	88	76
1893-95.....	14,259,700	168,049,348	.....	11.78	11.62	79	82	83
1862.....	2,384,051	36,046,866	15.12	10.42	10.08	69	74	61
1872.....	3,165,313	54,874,869	17.33	15.37	14.67	100	100	100
1895.....	4,545,290	47,927,140	.....	10.54	11.17	76	72	73

Percentage 6.84.

TABLE XIII. (a).—Continued.

## MISSOURI.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Cur- rency.	Gold.	Cor- rected Values.	To Cor- rected Av'r'ge Values.	Av'r'ge Nine Crops.	Accord- ing to Relative Import- ance.
1862-66.....	10,850,844	212,534,857	19.59	12.44	12.82	98	94	108
1867-70.....	11,999,822	239,676,636	19.97	15.80	16.17	124	126	128
1871-74.....	13,793,253	231,849,279	16.81	15.10	14.39	110	104	108
1875-78.....	20,113,955	242,617,062	12.07	11.46	10.88	83	87	82
1879-82.....	25,677,234	412,931,442	.....	16.08	15.24	116	114	113
1883-86.....	30,954,815	348,423,500	.....	11.26	11.26	86	88	88
1887-90.....	33,269,736	407,735,343	.....	12.26	12.46	96	96	97
1891-94.....	34,482,996	411,521,420	.....	11.93	12.79	98	94	96
1862-66.....	10,850,844	212,534,857	19.59	12.44	12.82	98	94	108
1867-73.....	23,153,773	407,508,300	17.60	14.74	14.71	108	98	114
1874-80.....	36,226,144	494,213,647	13.64	13.13	12.93	99	97	92
1881-87.....	50,516,672	672,112,134	.....	13.30	13.10	100	99	100
1888-94.....	60,395,222	720,920,601	.....	11.94	12.50	96	96	97
1862-94.....	181,142,655	2,507,289,539	13.84	12.94	12.94	99	98	95
1876-78.....	14,928,995	177,963,062	11.92	11.62	10.61	82	85	95
1893-95.....	26,715,151	262,189,677	.....	9.81	10.38	80	84	82
1862.....	3,126,280	35,644,531	11.40	7.86	7.79	60	67	62
1872.....	4,184,088	58,067,470	13.87	12.21	13.05	100	100	100
1895.....	10,770,862	84,652,464	.....	7.86	8.45	65	73	67

Percentage 9.97.

## IOWA.

1862.....	2,790,970	26,429,685	9.47	6.73	.....	.....	.....
1863.....	2,173,278	32,572,034	14.99	14.24	.....	.....	.....
1864.....	2,990,953	71,100,481	23.75	11.03	.....	.....	.....
1865.....	3,511,069	45,498,141	12.96	9.25	.....	.....	.....
1866.....	3,407,898	60,907,173	17.89	13.26	.....	.....	.....
1867.....	3,643,911	64,789,070	17.78	14.17	.....	.....	.....
1868.....	4,239,021	71,584,420	16.89	11.76	.....	.....	.....
1869.....	5,038,592	65,063,670	12.91	9.33	.....	.....	.....
1870.....	5,279,962	75,432,200	14.29	10.29	.....	.....	.....
1871.....	5,327,550	58,233,280	10.54	9.48	.....	.....	.....
1872.....	5,771,758	53,158,530	9.21	8.17	.....	.....	.....
1873.....	6,293,016	83,102,210	13.21	12.04	.....	.....	.....
1874.....	6,592,942	96,996,094	14.71	13.84	.....	.....	.....
1875.....	8,176,560	87,901,300	10.75	9.42	.....	.....	.....
1876.....	7,170,640	71,607,200	9.99	9.40	.....	.....	.....
1877.....	9,136,500	97,127,200	10.61	10.47	.....	.....	.....
1878.....	10,437,233	65,586,300	.....	6.28	.....	.....	.....
1879.....	10,718,636	104,514,716	.....	9.75	.....	.....	.....
1880.....	12,376,085	130,371,394	.....	10.53	.....	.....	.....
1881.....	9,939,443	142,888,222	.....	14.38	.....	.....	.....
1882.....	10,863,706	127,760,528	.....	11.76	.....	.....	.....
1883.....	11,594,792	123,374,660	.....	10.67	.....	.....	.....
1884.....	14,871,776	122,124,450	.....	8.32	.....	.....	.....
1885.....	13,800,167	120,187,861	.....	8.71	.....	.....	.....
1886.....	12,336,549	121,460,996	.....	9.85	.....	.....	.....
1887.....	10,582,332	128,600,248	.....	12.15	.....	.....	.....
1888.....	15,524,363	133,351,310	.....	8.59	.....	.....	.....
1889.....	16,712,882	127,023,444	.....	7.60	.....	.....	.....
1890.....	12,913,675	169,036,855	.....	13.90	.....	.....	.....
1891.....	18,851,737	203,545,898	.....	10.80	.....	.....	.....
1892.....	13,915,697	142,611,023	.....	10.25	.....	.....	.....
1893.....	18,016,304	157,225,888	.....	8.73	.....	.....	.....
1894.....	8,025,991	103,573,782	.....	12.91	.....	.....	.....
1895.....	17,295,982	122,832,590	.....	7.10	.....	.....	.....

TABLE XIII. (a).—Continued.

IOWA.—Continued.

YEARS.	Total Product in Tons.	Total Value in Dollars. Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Cur- rency.	Gold.	Cor- rected Values.	To Cor- rected Av'r'ge Values.	Av'r'ge Nine Crops.	Accord- ing to Rel'tive Import- ance.
1862-66.....	14,874,168	236,507,514	15.90	10.85	9.36	126	123	126
1867-70.....	18,201,486	276,869,360	15.21	12.24	11.72	156	158	144
1871-74.....	24,185,266	291,490,114	12.05	11.02	9.95	134	130	128
1875-78.....	34,920,923	322,222,000	9.26	8.75	8.32	112	116	111
1879-82.....	43,897,870	505,534,860	.....	11.52	11.50	154	160	155
1883-86.....	52,603,284	487,147,967	.....	9.26	9.33	126	133	126
1887-90.....	55,733,252	558,011,857	.....	10.01	10.19	137	127	143
1891-94.....	58,809,729	606,956,091	.....	10.32	11.05	149	155	156
1862-66.....	14,874,168	236,507,514	15.90	10.85	9.36	126	123	126
1867-73.....	35,793,810	471,363,880	13.17	11.12	10.43	140	144	131
1874-80.....	64,008,597	654,104,204	13.14	9.78	9.23	124	129	123
1881-87.....	83,988,764	886,396,965	.....	10.55	10.64	143	142	143
1888-94.....	103,960,649	1,036,367,700	.....	9.96	10.55	143	152	148
1862-94.....	303,225,988	3,284,739,763	10.84	10.30	10.30	138	136	137
1876-78.....	26,744,373	235,330,700	8.80	8.76	7.99	108	119	112
1893-95.....	43,544,098	383,743,769	.....	8.85	9.11	124	121	133
1862.....	2,790,970	26,529,685	9.90	6.73	6.39	87	91	84
1872.....	5,771,758	53,158,530	9.21	8.17	7.44	100	100	100
1895.....	17,302,806	122,832,590	.....	7.10	7.33	99	87	102

Percentage 16.70.

MINNESOTA.

1862-66.....	2,567,839	39,080,567	15.22	9.66	11.36	90	99	97
1867-70.....	5,994,815	112,730,920	18.80	14.83	15.24	121	146	116
1871-74.....	7,719,942	121,860,690	15.08	14.14	13.98	111	124	107
1875-78.....	10,585,440	148,396,295	14.02	13.29	13.40	106	110	104
1879-82.....	15,197,474	244,092,829	.....	16.06	16.20	128	131	127
1883-86.....	18,383,989	217,224,825	.....	11.82	12.04	95	103	96
1887-90.....	16,469,368	235,208,573	.....	14.28	13.29	105	115	106
1891-94.....	21,163,847	261,167,417	.....	12.34	12.54	100	112	100
1862-66.....	2,567,839	39,080,567	15.22	9.66	11.36	90	99	97
1867-73.....	11,705,237	204,617,280	17.39	14.54	14.70	116	135	112
1874-80.....	19,826,309	286,630,222	14.46	13.93	13.94	110	113	108
1881-87.....	29,458,944	401,556,718	.....	13.63	13.51	107	116	109
1888-94.....	34,464,385	447,877,329	.....	13.00	12.94	102	112	103
1862-94.....	98,082,714	1,379,762,116	14.07	13.47	13.47	106	112	106
1876-78.....	8,331,566	110,980,305	13.32	12.99	13.21	104	110	104
1893-95.....	17,561,872	178,598,113	.....	10.17	10.00	80	87	81
1862.....	703,059	7,080,964	10.07	6.94	8.65	69	71	72
1872.....	1,967,280	30,209,520	15.35	13.62	12.64	100	100	100
1895.....	7,451,089	65,523,733	.....	8.79	8.52	69	67	66

Percentage 5.40.



## STATISTICS OF LABOR.

TABLE XIII. (a).—Continued.

## NEBRASKA.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Cur- rency. •	Gold.	Cor- rected Values.	To Cor- rected A'v'rge Values.	Av'r'ge Nine Crops.	Accord- ing to Relative Import- ance.
1862-66.....	289,854	6,623,042	22.85	14.51	14.39	202	184	227
1867-70.....	1,046,607	15,649,649	14.95	11.67	11.89	164	158	159
1871-74.....	2,018,669	23,746,401	11.76	10.43	10.09	141	147	123
1875-78.....	7,343,671	55,873,329	7.61	7.18	7.12	100	98	97
1879-82.....	12,866,654	150,742,694	.....	11.73	10.95	154	150	149
1883-86.....	25,667,696	198,474,589	.....	7.73	7.74	108	109	106
1887-90.....	22,348,780	215,324,109	.....	9.64	9.47	133	133	136
1891-94.....	25,676,108	255,148,622	.....	9.93	10.31	145	151	153
1862-66.....	289,854	6,623,042	22.85	14.51	14.39	202	184	227
1867-73.....	2,629,435	32,229,850	12.26	10.34	10.17	143	145	138
1874-80.....	13,526,501	121,213,970	8.96	8.65	8.25	116	117	113
1881-87.....	37,741,287	342,264,740	.....	9.07	8.95	126	123	125
1888-94.....	43,070,962	419,250,833	.....	9.73	9.96	140	143	143
1862-94.....	97,258,039	921,582,435	9.48	9.37	9.37	131	128	131
1876-78.....	5,966,561	45,228,329	7.58	7.39	6.99	98	96	96
1893-95.....	16,792,555	141,405,569	.....	8.42	8.73	123	125	131
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	541,555	4,745,785	8.78	7.80	7.12	100	100	100
1895.....	6,704,338	43,523,590	.....	6.49	6.60	93	83	97

Percentage 5.35.

## KANSAS.

1862-66.....	1,489,741	26,254,845	17.62	11.19	13.02	131	134	163
1867-70.....	3,137,296	53,273,763	16.98	13.37	14.07	141	138	154
1871-74.....	7,606,853	92,087,720	12.11	10.83	11.65	117	123	124
1875-78.....	17,929,916	167,814,794	9.36	8.86	8.29	83	88	81
1879-82.....	21,832,176	282,452,467	.....	12.94	12.45	125	133	121
1883-86.....	38,806,481	315,541,543	.....	8.13	8.98	90	97	98
1887-90.....	27,763,624	292,033,032	.....	10.52	10.06	101	109	106
1891-94.....	35,358,267	377,467,441	.....	10.68	10.85	109	121	94
1862-66.....	1,489,741	26,254,845	17.62	11.19	13.02	131	134	163
1867-73.....	9,296,178	114,518,853	12.32	10.31	11.69	117	121	127
1874-80.....	29,602,699	311,105,434	10.51	10.13	9.50	95	102	94
1881-87.....	55,141,923	543,907,012	.....	9.85	10.45	105	110	111
1888-94.....	58,393,813	611,139,461	.....	10.47	10.16	102	112	96
1862-94.....	153,924,354	1,606,925,605	10.44	10.20	10.20	102	109	103
1876-78.....	14,090,230	131,355,544	9.32	9.09	8.23	83	92	88
1893-95.....	26,318,071	238,156,127	.....	9.05	9.79	98	106	100
1862.....	274,000	2,947,865	10.76	7.41	8.06	81	90	103
1872.....	1,839,388	15,498,770	8.43	7.48	9.97	100	100	100
1895.....	11,346,972	94,154,046	.....	8.29	8.78	88	100	103

Percentage 8.47.

TABLE XIII. (b).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of the combined crops of corn, oats, wheat, barley, buckwheat, rye, potatoes, hay, and tobacco in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total product of said crops in said states in tons, and its total home or farm value in dollars, currency and gold, the average yield per acre in tons, and the average home or farm value per ton in gold and currency.

YEARS.	Total Area in Acres.	Total Product in Tons.	TOTAL VALUE IN DOLLARS.		AVERAGE		
			Currency.	Gold.	Yield Per Acre in Tons.	Value Per Ton in Dollars.	
						Cur.	Gold
1862.....	30,582,960	29,012,435	370,896,445	255,547,650	.949	12.78	8.81
1863.....	31,567,714	21,785,132	482,946,979	310,534,907	.690	22.17	14.25
1864.....	32,330,450	25,066,033	773,427,495	358,066,930	.775	30.86	14.29
1865.....	33,564,792	31,918,584	514,290,712	367,206,568	.949	16.11	11.50
1866.....	36,222,221	30,094,078	635,280,244	472,013,222	.831	21.11	15.68
1867.....	38,731,139	29,959,772	778,465,575	562,052,145	.774	25.99	18.76
1868.....	39,228,826	32,470,081	649,880,559	478,961,972	.828	20.01	14.75
1869.....	42,593,557	34,920,064	642,031,216	529,033,722	.820	18.39	15.15
1870.....	45,081,815	38,043,062	609,420,851	550,307,028	.844	16.02	14.47
1871.....	41,750,321	36,953,193	580,368,757	532,198,150	.885	15.71	14.40
1872.....	45,380,467	39,550,657	550,640,765	488,418,359	.872	13.92	12.35
1873.....	52,013,079	37,736,678	612,785,472	549,668,568	.726	16.24	14.57
1874.....	55,916,280	34,876,623	681,940,919	606,245,477	.624	19.55	17.38
1875.....	61,935,071	51,237,717	713,033,490	631,747,672	.827	13.92	12.33
1876.....	65,905,639	51,545,680	629,206,868	592,083,663	.782	12.21	12.49
1877.....	65,762,705	55,433,264	707,352,744	696,742,453	.843	12.66	12.57
1878.....	71,725,150	61,567,410	614,206,219	614,206,219	.858	9.98	9.98
1879.....	73,373,776	63,923,610	889,315,460	.....	.871	.....	13.91
1880.....	83,444,177	64,937,262	967,798,602	.....	.778	.....	15.30
1881.....	89,860,925	54,899,920	1,091,572,851	.....	.611	.....	19.88
1882.....	89,102,407	68,199,310	1,048,776,304	.....	.765	.....	15.38
1883.....	94,143,306	74,688,044	929,328,552	.....	.793	.....	12.44
1884.....	99,322,608	85,039,714	854,595,170	.....	.852	.....	10.05
1885.....	98,541,939	81,065,806	850,608,906	.....	.825	.....	10.49
1886.....	99,384,677	72,263,453	828,077,908	.....	.727	.....	11.46
1887.....	98,126,153	60,704,159	851,308,157	.....	.619	.....	14.02
1888.....	101,986,451	82,533,086	958,064,764	.....	.809	.....	11.61
1889.....	104,018,070	85,100,083	865,601,049	.....	.818	.....	10.17
1890.....	97,169,536	64,937,238	996,318,967	.....	.668	.....	15.34
1891.....	109,425,523	91,412,048	1,202,552,808	.....	.835	.....	13.16
1892.....	107,489,123	80,912,961	971,542,672	.....	.744	.....	12.14
1893.....	106,972,327	83,241,064	877,099,910	.....	.778	.....	10.54
1894.....	95,925,250	61,046,935	781,437,819	.....	.626	.....	12.80
1895.....	109,442,240	83,283,720	726,594,432	.....	.761	.....	9.93
1862-66.....	164,268,137	137,876,262	2,776,841,875	1,763,396,277	.839	20.15	12.78
1867-70.....	165,635,337	135,392,979	2,679,798,201	2,120,354,867	.817	19.79	15.66
1871-74.....	195,060,147	149,117,151	2,425,735,913	2,176,530,554	.764	16.27	14.59
1875-78.....	265,328,565	219,784,071	2,663,799,321	2,534,780,007	.828	12.12	11.53
1879-82.....	335,831,285	251,960,102	3,997,463,217	.....	.750	.....	15.85
1883-86.....	391,892,530	313,057,017	3,462,610,626	.....	.799	.....	11.06
1887-90.....	401,300,210	293,274,566	3,671,292,877	.....	.731	.....	12.52
1891-94.....	419,812,203	315,713,068	3,832,633,200	.....	.752	.....	12.14
1862-66.....	164,268,137	137,876,262	2,776,841,875	1,763,396,277	.839	20.15	12.78
1867-73.....	304,779,204	249,633,507	4,423,593,195	3,690,639,944	.819	17.72	14.78
1874-80.....	478,062,798	383,521,566	5,202,854,302	4,998,139,546	.802	13.56	13.03
1881-87.....	669,032,015	496,860,436	6,454,267,938	.....	.743	.....	12.99
1888-94.....	722,986,260	548,283,385	6,652,617,929	.....	.758	.....	12.13
1862-94.....	2,339,128,414	1,816,175,156	25,510,175,239	23,559,061,634	.776	14.04	12.97
1867-94.....	2,174,860,277	1,678,298,895	22,733,333,364	21,795,665,357	.773	13.53	12.99
1867-78.....	626,024,049	504,294,201	7,769,333,435	6,831,665,428	.806	15.40	13.55
1879-86.....	727,723,815	565,017,119	7,460,073,843	.....	.776	.....	13.20
1887-94.....	821,112,413	608,987,574	7,503,926,086	.....	.742	.....	12.32
1867-78.....	626,024,049	504,294,201	7,769,333,435	6,831,665,428	.806	15.40	13.55
1879-82.....	335,831,285	251,960,102	3,997,463,217	.....	.750	.....	15.85
1883-94.....	1,213,004,943	922,044,591	10,966,536,712	.....	.760	.....	11.89
1867-80.....	782,842,002	633,155,073	9,626,445,497	8,688,779,490	.809	15.20	13.72
1881-94.....	1,392,018,275	1,045,143,821	13,106,887,987	.....	.751	.....	12.54
1876-78.....	203,393,494	168,546,354	1,950,765,831	1,903,032,335	.829	11.57	11.29
1893-95.....	312,339,797	227,571,716	2,385,132,141	.....	.728	.....	10.48

TABLE XIII. (c).

An exhibit for various years and periods of years of the different gold farm or home values and different index numbers for the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco, raised in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY			INDEX NUMBERS.				
	Simple Division, Per Ton. (1)	Method for Cor- recting Averages Adopted in this Report. Per Ton. (2)	Allowing for Influ- ence of Ch'nging Freight Rates. Per Ton. (3)	Corresponding to Column			Average of Index Numbers for Ten States.	Accord- ing to Relative Import- ance. (a)
				(1)	(2)	(3)		
1862-66.....	\$12.78	\$12.43	\$11.51	103	102	114	111	95
1867-70.....	15.66	15.22	13.51	127	125	134	132	120
1871-74.....	14.59	13.99	13.04	118	115	136	120	114
1875-78.....	11.53	11.44	10.04	93	94	100	96	94
1879-82.....	15.85	15.30	14.23	128	126	140	128	124
1883-86.....	11.06	11.69	10.80	89	97	107	101	97
1887-90.....	12.52	12.79	12.29	101	105	121	111	108
1891-94.....	12.14	12.75	12.73	98	105	126	110	104
1862-66.....	12.78	12.43	11.51	103	102	114	111	95
1867-73.....	14.78	14.21	12.43	119	117	124	123	115
1874-80.....	13.03	12.63	11.41	106	104	113	108	103
1881-87.....	12.99	13.37	12.09	105	110	120	131	110
1888-94.....	12.13	12.76	12.13	98	105	120	110	105
1862-94.....	12.98	12.98	12.25	105	107	121	111	106
1876-78.....	11.29	10.99	9.85	111	90	98	96	94
1893-95.....	10.48	10.90	10.68	101	90	105	94	94
1862.....	8.81	7.92	7.92	90	65	78	73	63
1872.....	12.35	12.13	10.11	100	100	100	100	100
1895.....	9.93	9.74	9.27	85	80	92	79	88

(a) Computed by Sauerbeck's method.



TABLE XIII. (d).

An exhibit by states for various years and periods of years, from 1862 to 1895, inclusive, of the total product in tons of the combined crops of corn, oats, wheat, barley, buckwheat, rye, potatoes, hay, and tobacco raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total home or farm value of the same in currency and its simple and corrected average home or farm value per ton in gold and currency, and index numbers calculated in different ways, showing the percentage which the average gold value each year or period was of the average gold value in the same states for the year 1872.

## NEW YORK.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Currency	Gold.	Corrected Values.	To Corrected Values.	Average Nine Crops.	According to Relative Importance.
1862.....	7,642,924	122,729,768	16.10	11.09	.....	.....	.....	.....
1863.....	7,519,652	163,096,005	21.69	13.94	.....	.....	.....	.....
1864.....	6,735,520	232,253,033	34.48	15.96	.....	.....	.....	.....
1865.....	8,463,386	176,032,725	20.71	14.78	.....	.....	.....	.....
1866.....	8,003,058	209,886,609	26.23	19.48	.....	.....	.....	.....
1867.....	7,889,584	213,326,390	27.04	19.52	.....	.....	.....	.....
1868.....	6,887,446	167,269,070	24.29	17.89	.....	.....	.....	.....
1869.....	7,160,834	138,743,340	19.38	15.96	.....	.....	.....	.....
1870.....	6,848,710	151,677,440	22.15	20.00	.....	.....	.....	.....
1871.....	6,625,161	150,290,578	22.68	20.80	.....	.....	.....	.....
1872.....	6,751,796	146,796,670	21.74	19.28	.....	.....	.....	.....
1873.....	6,366,109	135,212,010	21.24	19.05	.....	.....	.....	.....
1874.....	7,567,850	140,048,880	18.51	16.45	.....	.....	.....	.....
1875.....	7,597,675	130,551,000	17.18	15.22	.....	.....	.....	.....
1876.....	8,130,430	135,625,200	16.68	15.70	.....	.....	.....	.....
1877.....	8,567,930	122,951,100	14.33	14.11	.....	.....	.....	.....
1878.....	9,234,071	111,258,964	12.05	12.04	.....	.....	.....	.....
1879.....	9,266,693	128,574,607	.....	13.88	.....	.....	.....	.....
1880.....	8,260,357	155,550,279	.....	18.83	.....	.....	.....	.....
1881.....	7,975,950	160,290,124	.....	20.09	.....	.....	.....	.....
1882.....	8,684,654	150,252,460	.....	17.30	.....	.....	.....	.....
1883.....	8,961,769	128,744,279	.....	14.37	.....	.....	.....	.....
1884.....	8,530,279	130,557,035	.....	15.31	.....	.....	.....	.....
1885.....	7,753,303	123,071,710	.....	15.87	.....	.....	.....	.....
1886.....	8,250,731	115,327,283	.....	13.98	.....	.....	.....	.....
1887.....	8,353,335	120,206,219	.....	14.39	.....	.....	.....	.....
1888.....	8,261,059	121,333,857	.....	14.66	.....	.....	.....	.....
1889.....	8,194,677	114,132,298	.....	13.93	.....	.....	.....	.....
1890.....	7,917,440	116,900,761	.....	14.76	.....	.....	.....	.....
1891.....	9,502,679	134,544,147	.....	14.16	.....	.....	.....	.....
1892.....	9,254,553	126,115,707	.....	13.63	.....	.....	.....	.....
1893.....	9,502,691	128,189,474	.....	13.48	.....	.....	.....	.....
1894.....	8,465,439	105,534,554	.....	12.47	.....	.....	.....	.....
1895.....	6,973,183	95,641,169	.....	13.72	.....	.....	.....	.....
1862-66.....	38,364,540	903,998,140	23.56	15.08	13.99	73	92	74
1867-70.....	28,786,574	671,016,240	23.31	18.36	18.64	97	116	93
1871-74.....	27,310,916	572,348,138	20.96	18.08	18.93	98	105	97
1875-78.....	33,530,106	500,386,264	14.92	14.18	14.19	74	91	73
1879-82.....	34,187,654	594,667,470	.....	17.39	17.24	90	105	88
1883-86.....	33,496,082	497,700,307	.....	14.86	14.78	77	89	76
1887-90.....	32,725,511	472,573,135	.....	14.44	14.65	76	100	75
1891-94.....	36,725,362	494,333,882	.....	13.46	14.26	74	87	72
1862-66.....	38,364,540	903,998,140	23.56	15.08	13.99	73	92	74
1867-73.....	48,529,640	1,103,315,498	22.73	18.90	18.83	98	119	98
1874-80.....	58,625,066	924,560,030	15.77	15.08	15.09	78	95	77
1881-87.....	58,510,021	928,449,110	.....	15.69	15.83	82	96	81
1888-94.....	61,098,538	846,700,798	.....	14.02	14.38	75	88	73
1862-94.....	265,127,745	4,707,023,576	17.75	15.68	15.68	81	96	80
1876-78.....	25,932,431	369,835,264	14.26	13.90	13.93	72	92	70
1893-95.....	24,941,313	329,315,197	.....	13.20	13.33	69	79	69
1862.....	7,642,924	122,729,768	16.10	11.09	10.27	53	62	72
1872.....	6,751,796	146,796,670	21.74	19.28	19.25	100	100	100
1895.....	6,973,183	95,641,169	.....	13.72	14.36	75	70	65

Percentage 36.12.



TABLE XIII. (d).—Continued.

## PENNSYLVANIA.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Currency.	Gold.	Corrected Values.	To Corrected Values.	Average Nine Crops.	According to Relative Importance.
1862-66.....	23,940,476	683,820,685	28.56	18.14	17.59	74	86	77
1867-70.....	21,786,912	595,996,960	27.36	21.89	21.29	89	104	93
1871-74.....	19,112,811	483,559,059	25.30	23.01	22.77	96	102	97
1875-78.....	23,762,422	416,613,458	17.53	16.88	16.98	71	83	72
1879-82.....	24,638,057	506,025,480	.....	20.54	19.87	84	94	85
1883-86.....	24,274,651	415,860,824	.....	17.54	17.16	72	81	72
1887-90.....	24,098,111	400,917,116	.....	16.64	16.92	71	83	71
1891-94.....	24,750,903	426,369,392	.....	17.22	17.55	73	80	73
1862-66.....	23,940,476	683,820,685	28.56	18.14	17.59	74	86	77
1867-73.....	36,129,003	961,825,104	26.62	21.95	21.87	92	105	93
1874-80.....	41,050,230	777,707,703	18.95	18.72	18.16	76	86	79
1881-87.....	42,565,075	780,810,523	.....	18.33	18.42	77	88	80
1888-94.....	42,679,559	725,498,959	.....	17.00	17.27	73	80	73
1862-94.....	136,364,343	3,929,162,974	21.08	18.76	18.76	79	90	79
1876-78.....	18,649,322	365,561,258	16.38	15.97	16.21	68	84	68
1893-95.....	18,633,139	296,538,499	.....	15.91	16.13	68	71	68
1862.....	4,944,018	88,765,067	17.95	12.37	13.18	55	62	52
1872.....	4,669,763	121,302,470	25.98	23.04	23.82	100	100	100
1895.....	6,247,575	87,465,211	.....	14.00	14.20	60	59	59

Percentage 25.39.

## KENTUCKY.

1862-66.....	5,772,412	154,625,529	26.79	17.01	20.07	107	113	107
1867-70.....	7,979,528	189,655,288	23.77	18.78	21.23	114	109	118
1871-74.....	9,341,257	206,793,880	22.14	19.87	20.29	109	109	109
1875-78.....	9,738,362	172,128,435	17.68	16.77	16.74	90	90	90
1879-82.....	11,207,087	254,881,520	.....	22.74	21.00	113	108	111
1883-86.....	13,173,104	246,075,506	.....	18.68	18.09	98	88	98
1887-90.....	11,821,912	257,010,594	.....	21.74	20.27	109	101	110
1891-94.....	14,159,999	260,297,826	.....	18.38	18.52	100	90	97
1862-66.....	5,772,412	154,625,529	26.79	17.01	20.07	107	113	107
1867-73.....	15,301,764	347,742,719	22.73	18.96	20.22	109	105	111
1874-80.....	17,556,429	327,010,849	18.63	17.92	18.05	98	97	99
1881-87.....	21,207,169	457,511,557	.....	21.57	20.65	111	98	110
1888-94.....	23,355,887	454,577,923	.....	19.46	18.83	101	94	99
1862-94.....	83,193,661	1,741,468,578	20.93	19.41	19.41	104	99	104
1876-78.....	7,257,622	120,966,735	16.67	16.25	16.38	89	84	88
1893-95.....	11,078,032	180,781,956	16.32	.....	16.58	90	83	89
1862.....	2,646,609	54,859,230	20.72	18.38	18.59	100	100	100
1872.....	3,953,514	44,021,072	.....	11.14	13.95	90	78	73
1895.....								

Percentages 11.33.

TABLE XIII. (d).—Continued.

## VIRGINIA.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Cur'ncy.	Gold.	Cor- rected Values.	To Cor- rected Values.	Av'age Nine Crops.	According to Relative Importance.
1862-66.....	1,308,710	55,266,845	42.23	26.82	27.32	120	99	124
1867-70.....	4,712,199	170,467,073	36.18	28.67	26.17	114	101	109
1871-74.....	4,086,024	124,781,409	30.54	27.49	26.72	116	101	116
1875-78.....	4,975,133	118,095,008	23.74	22.60	21.16	92	83	94
1879-82.....	6,331,286	154,266,385	.....	24.37	23.62	103	101	106
1883-86.....	6,353,253	144,523,193	.....	22.75	22.25	99	92	104
1887-90.....	7,359,756	148,756,198	.....	20.21	21.35	93	87	95
1891-94.....	8,150,334	150,004,073	.....	18.41	20.37	89	81	76
1862-66.....	1,308,710	55,266,845	42.23	26.82	27.32	120	99	124
1867-73.....	7,790,365	265,833,045	34.13	28.41	26.37	114	101	98
1874-80.....	9,105,193	218,939,453	24.04	23.07	21.76	104	91	80
1881-87.....	11,486,108	265,144,987	.....	23.08	22.93	99	95	86
1888-94.....	13,586,319	260,975,854	.....	19.21	21.88	95	85	79
1862-94.....	43,276,695	1,066,160,184	24.64	22.90	22.90	100	83	89
1876-78.....	3,817,437	86,699,236	22.71	22.15	20.10	88	76	76
1893-95.....	6,290,425	106,617,825	.....	16.95	18.89	82	72	70
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	966,330	31,294,930	32.38	28.70	22.98	100	100	100
1895.....	2,145,578	33,295,111	.....	15.52	14.51	63	66	66

Percentage 5.90.

## GEORGIA.

1862-66.....	550,443	30,097,204	54.68	34.72	36.08	128	109	129
1867-70.....	3,824,393	142,518,240	37.27	29.70	30.29	108	106	110
1871-74.....	3,187,122	110,868,878	34.72	31.22	30.58	108	106	110
1875-78.....	3,398,109	96,242,303	28.22	26.63	26.08	93	109	92
1879-82.....	3,746,511	110,917,725	.....	29.60	28.22	100	92	99
1883-86.....	4,213,413	104,967,302	.....	24.91	24.41	86	84	87
1887-90.....	4,451,882	105,458,046	.....	23.68	23.64	84	76	84
1891-94.....	5,427,960	117,458,526	.....	21.64	22.80	80	71	80
1862-66.....	550,443	30,097,204	54.68	34.72	36.08	128	109	129
1867-73.....	6,148,631	221,857,517	36.08	30.09	28.18	100	107	111
1874-80.....	5,957,360	176,458,903	29.62	28.37	27.15	96	98	109
1881-87.....	7,416,217	194,966,886	.....	26.29	25.67	90	87	91
1888-94.....	8,727,182	194,947,714	.....	22.34	23.08	80	73	81
1862-94.....	28,799,833	818,328,224	28.41	26.43	26.43	94	93	94
1876-78.....	2,639,653	69,305,595	26.26	25.60	24.45	87	79	87
1893-95.....	4,253,162	80,163,319	.....	18.85	19.81	69	66	70
1862.....	.....	.....	.....	.....	.....	.....	.....	.....
1872.....	815,031	28,270,031	34.69	30.77	28.17	100	100	100
1895.....	1,578,967	24,409,030	.....	15.46	16.72	59	58	60

Percentage 3.93.

TABLE XIII. (d).—Continued.

## TEXAS.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.			INDEX NUMBERS.		
			Cur'ney.	Gold.	Cor- rected Values.	To Cor- rected Values.	Av'age Nine Crops.	According to Relative Importance.
1862-66.....	669,110	23,295,823	34.82	22.11	21.99	121	81	122
1867-70.....	2,811,489	84,772,260	30.15	23.86	24.71	136	99	146
1871-74.....	3,230,283	90,180,078	27.92	25.08	26.23	144	111	155
1875-78.....	6,466,807	130,628,902	20.20	19.24	18.89	106	85	105
1879-82.....	6,824,134	174,724,353	.....	25.60	25.38	140	92	141
1883-86.....	9,581,868	200,849,770	.....	20.96	20.40	112	79	117
1887-90.....	11,145,218	199,329,699	.....	17.85	17.76	98	68	98
1891-94.....	11,727,167	209,447,334	.....	17.86	18.72	103	71	96
1862-66.....	669,110	23,295,823	34.82	22.11	21.99	121	81	122
1867-70.....	5,123,524	150,856,803	29.44	24.54	24.31	134	106	150
1874-80.....	10,805,025	238,678,283	22.09	21.23	21.14	111	88	119
1881-87.....	15,679,642	342,855,047	.....	21.23	21.34	112	82	117
1888-94.....	20,178,775	358,542,263	.....	17.77	18.16	100	69	96
1862-94.....	52,456,076	1,113,228,219	21.22	20.40	20.42	107	82	112
1876-78.....	5,407,544	98,969,052	18.30	17.84	17.48	96	81	96
1893-95.....	9,520,593	147,525,391	.....	15.40	15.99	88	65	87
1862.....	881,226	16,018,808	18.18	16.13	18.18	100	100	100
1872.....	4,033,835	44,006,040	.....	10.91	11.87	66	48	68
1895.....								

Percentage 7.15.

## CALIFORNIA.

1862-66.....	766,179	21,503,749	.....	28.07	24.98	99	114	105
1867-70.....	4,299,470	117,781,502	.....	27.40	25.04	100	101	101
1871-74.....	6,704,360	203,439,883	.....	30.35	28.05	112	108	113
1875-78.....	8,721,765	241,107,358	.....	27.64	25.33	101	100	103
1879-82.....	10,988,395	256,428,253	.....	23.34	22.23	88	85	91
1883-86.....	11,939,534	220,316,660	.....	19.21	18.54	74	71	74
1887-90.....	12,820,780	234,161,895	.....	18.26	18.43	73	64	73
1891-94.....	18,495,014	244,246,576	.....	13.21	15.44	61	64	61
1862-66.....	766,179	21,503,749	.....	28.07	24.98	99	114	105
1867-73.....	9,080,566	268,572,392	.....	29.57	27.37	109	105	110
1874-80.....	16,466,485	430,836,017	.....	26.16	23.80	93	96	98
1881-87.....	20,246,608	404,274,224	.....	19.92	19.38	77	75	78
1888-94.....	28,175,659	422,799,499	.....	15.00	16.55	66	68	66
1862-94.....	74,735,497	1,547,985,831	.....	20.70	20.70	83	82	83
1876-78.....	6,916,975	186,812,258	.....	27.01	24.62	98	79	100
1893-95.....	13,685,413	164,252,204	.....	12.01	13.76	55	58	41
1862.....	766,097	21,503,749	.....	28.07	24.59	99	113	105
1872.....	1,698,338	49,613,848	.....	29.21	25.10	100	100	100
1895.....	4,610,591	54,400,308	.....	11.80	13.98	54	58	36

Percentage 10.18.

TABLE XIII. (e).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, for the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, of the total product in tons of the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco, together with their total home or farm value in currency, and their average home or farm value per ton in gold and currency, and index numbers for the same.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS.		Index Numbers.
			Currency.	Gold.	
1862-66.....	71,371,870	1,872,607,975	26.24	16.83	77
1867-70.....	74,201,563	1,972,450,523	26.59	21.41	98
1871-74.....	72,972,774	1,791,771,325	24.55	22.41	102
1875-78.....	90,592,704	1,675,201,728	18.49	17.77	81
1879-82.....	97,923,122	2,051,911,191	.....	20.95	96
1883-86.....	103,031,908	1,839,293,562	.....	17.85	82
1887-90.....	104,424,170	1,818,206,683	.....	17.41	80
1891-94.....	119,436,738	1,902,157,609	.....	15.93	73
1862-66.....	71,371,870	1,872,607,975	26.24	16.83	77
1867-73.....	128,104,490	3,319,246,029	25.90	21.87	100
1874-80.....	159,565,730	3,094,191,238	19.39	18.84	86
1881-87.....	177,110,837	3,373,512,334	.....	19.05	87
1888-94.....	197,801,922	3,264,043,020	.....	16.50	75
1862-94.....	733,954,849	14,923,600,596	20.33	18.59	85
1867-94.....	662,582,979	13,050,992,621	19.70	18.78	85
1867-78.....	237,767,041	5,439,423,576	22.88	20.33	93
1879-86.....	200,955,030	3,891,204,753	.....	19.37	88
1887-94.....	223,860,908	3,720,364,292	.....	16.62	76
1867-78.....	237,767,041	5,439,423,576	22.88	20.33	93
1879-82.....	97,923,122	2,051,911,191	.....	20.95	96
1883-94.....	326,892,816	5,559,657,854	.....	17.01	78
1867-80.....	287,670,220	6,413,437,267	22.30	20.19	92
1881-94.....	374,912,759	6,637,555,354	.....	17.70	81
1876-78.....	70,424,304	1,238,149,448	17.58	17.20	79
1893-95.....	92,143,631	1,339,498,105	.....	14.54	66
1862.....	13,353,040	232,998,584	17.45	12.52	57
1872.....	18,427,093	448,155,987	24.32	21.87	100
1895.....	29,633,979	393,017,946	.....	13.26	61



TABLE XIII. (f).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco raised in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY			INDEX NUMBERS.				
	Simple Division Per Ton. (1)	Method for Cor- recting Averages Adopted in this Report. (2) Per Ton.	Allowing for In- fluence of Chang- ing Freight Rates per Ton. (3)	Corresponding to Column			Average of Index Nos. for Seven States.	Accord- ing to Relative Import- ance (a)
				(1)	(2)	(3)		
1862-66.....	\$16.83	\$18.93	\$14.94	77	88	111	99	79
1867-70.....	21.41	21.58	16.64	98	101	124	105	98
1871-74.....	22.41	22.43	15.64	102	105	116	105	103
1875-78.....	17.77	17.54	14.01	81	82	104	91	81
1879-82.....	20.95	20.24	16.90	96	94	125	97	94
1883-86.....	17.85	17.36	14.57	82	81	108	83	81
1887-90.....	17.41	17.22	15.72	80	80	115	82	80
1891-94.....	15.93	16.72	16.72	73	78	124	78	76
1862-66.....	16.83	18.93	14.94	77	88	111	99	79
1867-73.....	21.87	22.20	16.13	100	104	120	105	101
1874-80.....	18.84	18.38	14.66	86	86	109	93	86
1881-87.....	19.05	18.59	15.62	87	87	114	89	86
1888-94.....	16.50	16.83	16.00	75	78	118	90	78
1862-94.....	18.59	18.59	15.94	85	87	118	90	85
1876-78.....	17.20	16.69	13.39	79	78	100	84	78
1893-95.....	14.54	15.32	14.59	66	71	109	72	72
1862.....	12.52	.....	.....	57	.....	.....	51	57
1872.....	21.87	21.43	13.44	100	100	100	100	100
1895.....	13.26	14.16	12.13	61	66	90	64	66

(a) Computed by Sauerbeck's method.

TABLE XIII. (g).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, for the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California of the total product in tons of the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco, together with their total home or farm value in currency, and their average home or farm value per ton in gold and currency, and index numbers for the same.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE PER TON IN DOLLARS		Index Numbers.
			Currency.	Gold.	
1862-66.....	209,248,132	4,649,449,850	22.22	14.17	92
1867-70.....	209,594,542	4,652,248,724	22.20	17.70	115
1871-74.....	222,089,925	4,217,507,238	18.99	17.16	112
1875-78.....	310,376,775	4,339,001,049	13.98	13.35	86
1879-82.....	349,883,224	6,049,374,408	.....	17.29	112
1883-86.....	416,088,925	5,301,904,188	.....	12.74	82
1887-90.....	397,698,736	5,480,499,560	.....	13.80	89
1891-94.....	435,149,746	5,734,790,818	.....	13.18	85
1862-66.....	209,248,132	4,649,449,850	22.22	14.17	92
1867-73.....	377,737,997	7,742,839,224	20.50	17.19	112
1874-80.....	543,087,296	8,297,045,540	15.28	14.74	96
1881-87.....	673,971,273	9,827,780,272	.....	14.58	95
1888-94.....	746,085,307	9,916,660,349	.....	13.29	86
1862-94.....	2,550,130,005	40,433,775,835	15.86	14.59	95
1867-94.....	2,340,881,874	35,784,325,985	15.29	14.63	95
1867-78.....	742,061,242	13,208,757,011	17.80	15.72	102
1879-86.....	765,972,149	11,351,278,596	.....	14.82	96
1887-94.....	832,848,482	11,224,290,378	.....	13.47	87
1867-78.....	742,061,242	13,208,757,011	17.80	15.72	102
1879-82.....	349,883,224	6,049,374,408	.....	17.29	112
1883-94.....	1,248,937,407	16,526,194,566	.....	13.23	85
1867-80.....	920,825,293	16,039,884,764	17.42	15.74	102
1881-94.....	1,420,056,580	19,744,441,221	.....	13.90	90
1876-78.....	238,970,658	3,188,915,279	13.35	13.03	84
1893-95.....	319,715,347	3,724,630,246	.....	11.65	76
1862.....	42,365,475	603,895,029	14.25	9.98	65
1872.....	57,977,750	998,796,752	17.23	15.38	100
1895.....	112,917,699	1,119,612,378	.....	9.91	64

TABLE XIII. (h).

An exhibit for various years and periods of years of the different average gold farm or home values and different index numbers for the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco, raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, the different averages and index numbers having been obtained by different calculations.

YEARS.	AVERAGE VALUES OBTAINED BY			INDEX NUMBERS.				
	Simple Division, per Ton. (1)	Method for Correct- ing Averages Adopted in this Report per Ton. (2)	Allowing for Infla- ence of Changing Freight Rates per Ton. (3)	Corresponding to Column			Average of Index Numbers for Seven- teen States.	Accord- ing to Relative Importance. (a)
				(1)	(2)	(3)		
1862-66.....	\$14.17	\$14.30	\$12.70	92	97	115	106	88
1867-70.....	17.70	17.03	14.39	115	115	130	120	110
1871-74.....	17.16	16.43	13.80	112	111	125	114	109
1875-78.....	13.35	13.19	11.17	86	89	100	94	89
1879-82.....	17.29	17.72	15.98	112	113	144	114	112
1883-86.....	12.74	13.32	11.89	82	90	108	93	91
1887-90.....	13.80	14.17	13.38	89	95	121	99	97
1891-94.....	13.18	13.90	13.90	85	94	126	97	92
1862-66.....	14.17	14.30	12.70	92	97	115	106	88
1867-73.....	17.19	16.61	13.59	112	112	123	115	108
1874-80.....	14.74	14.28	12.33	96	97	112	102	96
1881-87.....	14.58	14.87	13.10	95	100	119	109	100
1888-94.....	13.29	13.87	13.18	86	94	119	98	94
1862-94.....	14.59	14.59	13.31	95	98	120	103	98
1876-78.....	13.03	12.63	10.89	84	85	98	92	88
1893-95.....	11.65	12.16	11.78	76	82	101	93	84
1862.....	9.98	.....	.....	65	.....	.....	66	61
1872.....	15.38	14.81	11.06	100	100	100	100	100
1895.....	9.91	11.27	10.35	64	74	94	73	76

(a) Computed by Sauerbeck's method.

TABLE XIII. (i).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the acres of the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco in the states of the American Union, not included in the ten Tables (a) to (c), and referred to in this report as the Exterior States, together with the total product of said crops in said Exterior States in tons, and its total home or farm value in dollars, currency and gold, the average yield per acre in tons, and the average home or farm value per ton in gold and currency.

YEARS.	Total. Area in Acres.	Total Production. in Tons.	TOTAL VALUE IN DOLLARS.		Average Per Acre in Tons.	AV. VALUE PER TON IN DOLLARS.	
			Currency.	Gold.		Cur- rency.	Gold.
1862.....	18,985,980	21,032,355	335,991,050	231,497,832	1.108	16.18	11.01
1863.....	23,568,534	20,309,397	472,753,983	303,980,811	.862	23.68	14.97
1864.....	23,907,826	19,834,556	731,116,195	338,506,798	.830	36.86	17.07
1865.....	25,144,584	23,824,705	533,069,455	380,611,591	.948	22.31	15.98
1866.....	44,717,613	29,694,982	927,903,886	689,432,587	.664	31.25	23.22
1867.....	48,612,387	33,574,884	1,008,996,656	728,495,586	.691	30.05	21.70
1868.....	50,696,225	34,934,843	944,324,994	707,272,976	.689	27.03	20.25
1869.....	47,281,736	34,388,370	900,432,302	748,451,074	.727	26.18	21.76
1870.....	45,929,125	33,110,037	848,140,437	769,546,376	.721	25.61	23.24
1871.....	44,121,594	29,187,787	796,778,390	734,542,044	.662	27.30	25.16
1872.....	45,134,597	31,624,285	787,933,893	704,503,728	.701	24.91	22.28
1873.....	45,941,281	31,047,670	763,100,177	690,086,977	.676	24.57	22.23
1874.....	47,714,822	31,896,786	771,483,719	691,693,064	.668	24.19	21.69
1875.....	50,756,112	34,970,445	766,226,474	685,066,297	.685	22.04	19.71
1876.....	55,772,760	34,924,674	730,154,618	690,564,141	.626	20.91	19.77
1877.....	55,292,576	38,292,507	717,002,784	706,985,202	.693	18.72	18.46
1878.....	58,519,210	42,126,250	692,668,578	692,668,578	.720	16.44	16.44
1879.....	55,846,965	41,848,652	815,320,426	.....	.749	.....	19.48
1880.....	66,798,574	44,129,754	897,172,390	.....	.666	.....	20.33
1881.....	66,103,754	37,168,448	937,179,392	.....	.562	.....	25.21
1882.....	72,598,864	45,839,008	929,370,042	.....	.631	.....	20.27
1883.....	74,934,214	46,038,257	863,576,189	.....	.614	.....	18.76
1884.....	77,987,399	46,976,348	845,540,100	.....	.602	.....	18.00
1885.....	80,202,185	46,532,898	803,709,537	.....	.580	.....	17.27
1886.....	82,014,013	47,596,435	805,431,859	.....	.580	.....	16.90
1887.....	84,315,843	52,207,611	898,905,495	.....	.619	.....	17.22
1888.....	86,167,058	52,467,912	895,770,453	.....	.621	.....	17.07
1889.....	87,205,617	52,569,223	840,778,243	.....	.603	.....	15.04
1890.....	84,631,206	48,905,009	909,124,456	.....	.578	.....	18.59
1891.....	90,519,270	64,933,607	1,081,446,828	.....	.717	.....	16.65
1892.....	87,996,309	60,132,702	903,744,879	.....	.683	.....	15.03
1893.....	85,962,671	58,445,015	883,389,363	.....	.680	.....	15.11
1894.....	85,049,990	60,064,763	849,433,976	.....	.706	.....	14.14
1895.....	88,308,278	63,644,284	798,485,040	.....	.721	.....	12.54
1862-66.....	136,324,537	114,695,995	3,000,834,569	1,944,029,619	.841	26.29	16.95
1867-70.....	192,519,473	136,008,134	3,701,894,389	2,953,766,012	.706	27.22	21.72
1871-74.....	182,912,294	123,756,528	3,119,296,179	2,820,825,813	.677	25.20	22.79
1875-78.....	220,340,658	150,313,876	2,906,052,454	2,775,284,308	.682	19.33	18.46
1879-82.....	261,348,157	168,985,862	3,579,042,250	.....	.647	.....	21.18
1883-86.....	315,137,811	187,143,938	3,318,257,685	.....	.593	.....	17.73
1887-90.....	342,319,724	206,149,755	3,544,578,647	.....	.602	.....	17.19
1891-94.....	349,528,240	243,576,087	3,718,016,046	.....	.697	.....	15.26
1862-66.....	136,324,537	114,695,995	3,000,834,569	1,944,029,619	.841	26.29	16.95
1867-73.....	327,716,945	227,867,876	6,049,706,849	5,082,898,761	.695	26.55	22.31
1874-80.....	389,701,019	268,189,068	5,390,028,989	5,179,470,188	.688	20.09	19.31
1881-87.....	539,156,272	322,358,975	6,083,712,614	.....	.597	.....	18.93
1888-94.....	637,532,121	397,518,261	6,363,689,198	.....	.654	.....	16.01
1862-94.....	2,000,430,894	1,330,630,175	26,887,972,219	24,653,800,380	.665	20.21	18.53
1867-94.....	1,864,106,357	1,215,934,180	23,887,137,650	22,709,770,761	.652	19.65	18.68
1867-78.....	595,772,425	410,078,538	9,727,243,022	8,549,876,113	.688	23.72	20.85
1879-86.....	576,485,968	356,129,800	6,897,299,935	.....	.618	.....	19.37
1887-94.....	691,847,964	449,725,842	7,262,594,693	.....	.650	.....	16.15
1867-78.....	595,772,425	410,078,538	9,727,243,022	8,549,876,113	.688	23.72	20.85
1879-82.....	261,348,157	168,985,862	3,579,042,250	.....	.647	.....	21.18
1883-94.....	1,006,985,775	636,869,780	10,580,852,378	.....	.630	.....	16.61
1867-80.....	717,417,964	496,056,944	11,439,735,838	10,262,368,949	.691	23.05	20.69
1881-94.....	1,146,688,393	719,877,236	12,447,401,812	.....	.628	.....	17.29
1876-78.....	169,584,556	115,343,431	2,139,825,980	2,090,218,011	.680	18.55	18.12
1893-95.....	259,310,939	182,154,062	2,531,309,379	.....	.703	.....	13.90



TABLE XIII. (j).

An exhibit by years and certain periods of years of the acres of the combined crops of corn, oats, wheat, barley, buckwheat, rye, potatoes, hay, and tobacco raised in the United States, the average yield per acre in tons, together with the total home or farm value in dollars, currency and gold, and the average home or farm value per ton in gold and currency.

YEARS.	Total Area in Acres.	Total Product in Tons.	TOTAL VALUE IN DOLLARS.		AVERAGE		
			Currency.	Gold.	Yield per Acre in Tons.	Value per Ton in Dollars.	
						Cur- rency	Gold.
1862.....	49,568,940	50,044,790	706,887,495	487,045,482	1.021	14.12	9.73
1863.....	55,136,248	42,094,529	955,700,962	614,515,718	.793	22.70	14.60
1864.....	56,238,276	44,900,589	1,504,543,690	696,608,728	.798	33.51	15.52
1865.....	58,709,376	55,743,289	1,047,360,167	747,815,159	.949	18.79	13.42
1866.....	80,939,834	59,789,060	1,563,184,130	1,161,445,809	.714	26.14	19.43
1867.....	87,343,526	63,534,656	1,787,462,231	1,290,547,731	.762	28.13	20.31
1868.....	89,925,051	67,404,924	1,594,205,553	1,186,234,948	.750	23.65	17.00
1869.....	89,875,293	69,308,434	1,542,463,518	1,277,484,796	.771	22.25	18.43
1870.....	91,010,940	71,153,099	1,457,561,288	1,319,853,404	.782	20.48	18.55
1871.....	85,871,915	66,140,980	1,377,147,147	1,266,740,194	.770	20.82	19.15
1872.....	90,515,064	71,174,942	1,338,574,658	1,192,922,087	.786	18.81	16.76
1873.....	97,954,360	68,784,348	1,375,885,649	1,239,755,545	.702	20.00	18.02
1874.....	103,631,102	66,773,409	1,453,424,638	1,297,938,541	.646	21.77	19.44
1875.....	112,691,183	86,208,162	1,479,259,964	1,316,813,969	.765	17.16	15.27
1876.....	121,678,399	86,470,354	1,359,361,486	1,282,647,804	.711	15.72	14.83
1877.....	121,055,281	93,725,771	1,424,355,528	1,403,727,745	.774	15.20	14.98
1878.....	130,244,360	103,693,660	1,306,874,797	1,306,874,797	.796	12.60	12.60
1879.....	129,220,741	105,772,262	1,704,635,886	.....	.819	.....	16.12
1880.....	149,242,751	109,067,016	1,864,970,992	.....	.731	.....	17.10
1881.....	156,964,679	92,068,368	2,028,752,243	.....	.587	.....	22.03
1882.....	161,751,271	114,088,318	1,978,146,346	.....	.705	.....	17.35
1883.....	169,077,520	120,726,301	1,792,904,741	.....	.714	.....	14.85
1884.....	177,810,007	132,016,662	1,700,135,270	.....	.679	.....	12.88
1885.....	178,744,124	127,598,704	1,654,318,533	.....	.714	.....	12.96
1886.....	181,398,690	119,859,888	1,633,509,767	.....	.661	.....	13.63
1887.....	182,441,993	112,911,770	1,750,213,652	.....	.619	.....	15.50
1888.....	188,153,509	135,000,998	1,853,835,217	.....	.718	.....	13.73
1889.....	191,223,687	137,669,506	1,706,379,272	.....	.720	.....	12.39
1890.....	181,800,742	118,842,247	1,905,443,363	.....	.626	.....	16.74
1891.....	199,944,793	156,345,655	2,283,999,656	.....	.782	.....	14.61
1892.....	194,485,432	140,145,663	1,875,287,551	.....	.721	.....	13.38
1893.....	192,934,998	141,686,979	1,760,489,273	.....	.734	.....	12.42
1894.....	181,975,220	121,111,638	1,630,872,795	.....	.666	.....	13.46
1895.....	197,750,518	146,928,004	1,525,079,472	.....	.743	.....	10.38
1862-66.....	300,592,674	252,572,257	5,777,676,444	3,707,425,896	.842	22.81	14.69
1867-70.....	358,154,810	271,401,113	6,381,692,590	5,074,120,879	.758	23.51	18.70
1871-74.....	377,972,441	272,873,679	5,545,032,092	4,997,356,367	.722	20.32	18.28
1875-78.....	485,669,223	370,097,947	5,569,851,775	5,310,064,315	.762	15.05	14.35
1879-82.....	597,179,442	420,943,964	7,576,505,467	.....	.705	.....	18.00
1883-86.....	707,030,341	500,200,955	6,780,868,311	.....	.707	.....	13.56
1887-90.....	743,619,934	499,424,321	7,215,871,524	.....	.672	.....	14.45
1891-94.....	769,340,443	559,289,095	7,550,649,255	.....	.727	.....	13.50
1862-66.....	300,592,674	252,572,257	5,777,676,444	3,707,425,896	.842	22.81	14.69
1867-73.....	632,496,149	477,501,383	10,473,300,044	8,773,538,705	.755	21.93	18.37
1874-80.....	867,763,817	651,710,634	10,592,883,291	10,177,609,734	.751	16.25	15.62
1881-87.....	1,208,188,287	919,219,411	12,537,980,552	.....	.678	.....	15.30
1888-94.....	1,330,518,381	945,801,646	13,016,307,127	.....	.711	.....	13.76
1862-94.....	4,339,550,208	3,146,805,331	52,398,147,458	48,212,862,014	.725	16.65	15.32
1867-94.....	4,038,966,634	2,894,233,074	46,620,471,014	44,505,436,118	.717	16.11	15.38
1867-78.....	1,221,798,574	914,372,739	17,496,576,457	15,381,541,561	.748	19.13	16.82
1879-86.....	1,304,209,783	921,146,919	14,357,373,778	.....	.706	.....	15.59
1887-94.....	1,512,960,377	1,058,713,416	14,766,520,779	.....	.700	.....	13.95
1867-78.....	1,221,796,474	914,372,739	17,496,576,457	15,381,541,561	.748	19.13	16.82
1879-82.....	597,179,442	420,945,964	7,576,505,467	.....	.705	.....	18.00
1883-94.....	2,219,990,718	1,558,914,371	21,547,389,090	.....	.702	.....	13.18
1867-80.....	1,500,259,966	1,129,212,017	21,066,183,335	18,951,148,439	.753	18.65	16.77
1881-94.....	2,538,706,668	1,765,021,057	25,554,287,679	.....	.695	.....	14.48
1876-78.....	372,978,040	283,889,785	4,090,591,811	3,993,250,346	.761	14.41	14.41
1893-95.....	572,660,736	400,725,781	4,916,441,540	.....	.715	.....	12.00

TABLE XIII. (k).

A comparative exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers, the average value per ton of the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco raised in the ten Mississippi Valley states, in the Exterior States, and in the nation, together with the weight in tons and their value in dollars gold of the per capita product of said crops in the United States.

YEARS.	INDEX NUMBERS.			GOLD VALUE PER TON IN DOLLARS.			PER CAPITA PRODUCT.		Index Numbers for Cotton Nation.
	Ten States.	Exterior States.	Nation.	Ten States.	Ex- terior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.	
1862.....	71	49	57	8.81	11.01	9.73	.....	.....	.....
1863.....	115	67	87	14.25	14.97	14.60	.....	.....	.....
1864.....	115	77	93	14.29	17.07	15.52	.....	.....	.....
1865.....	93	72	80	11.50	15.98	13.42	.....	.....	.....
1866.....	127	104	116	15.68	23.22	19.43	.....	.....	.....
1867.....	152	97	121	18.76	21.70	20.31	1.754	35.63	96
1868.....	119	91	105	14.75	20.25	17.60	1.823	32.06	109
1869.....	122	98	110	15.15	21.76	18.43	1.836	34.24	120
1870.....	100	104	111	14.47	23.24	18.55	1.845	34.23	88
1871.....	100	113	114	14.40	25.16	19.15	1.674	32.03	131
1872.....	100	100	100	12.35	22.28	16.76	1.754	29.46	100
1873.....	118	100	108	14.57	22.23	18.02	1.650	29.72	89
1874.....	141	97	116	17.38	21.60	18.44	1.560	30.34	88
1875.....	100	88	91	12.33	19.71	15.27	1.961	29.95	78
1876.....	93	89	88	11.49	19.77	14.83	1.915	28.42	71
1877.....	102	83	89	12.57	18.46	14.98	2.025	30.49	69
1878.....	81	74	75	9.98	16.44	12.60	2.178	27.46	56
1879.....	113	87	96	13.91	19.48	16.12	2.164	34.87	60
1880.....	124	91	102	15.30	20.33	17.10	2.175	37.19	60
1881.....	161	113	131	19.88	25.21	22.03	1.794	39.53	69
1882.....	126	91	104	15.38	20.27	17.35	2.160	37.69	63
1883.....	101	84	89	12.44	18.76	14.85	2.249	33.40	63
1884.....	82	81	77	10.05	18.00	12.88	2.404	30.94	64
1885.....	83	78	77	10.49	17.27	12.96	2.272	29.47	58
1886.....	93	76	81	11.46	16.90	13.63	2.088	28.46	56
1887.....	114	77	92	14.02	17.22	15.50	1.924	29.84	58
1888.....	94	77	82	11.61	17.07	13.73	2.201	30.13	58
1889.....	83	68	74	10.71	15.04	12.39	2.247	27.84	57
1890.....	124	83	100	15.34	18.59	16.74	1.818	30.47	55
1891.....	106	75	87	13.16	16.65	14.61	2.444	35.68	47
1892.....	98	68	80	12.14	15.03	13.38	2.143	28.66	55
1893.....	85	68	74	10.54	15.11	12.42	2.120	26.34	48
1894.....	104	63	80	12.80	14.14	13.46	1.774	23.88	37
1895.....	81	56	62	9.93	12.54	10.38	.....	.....	.....
1862-66....	103	76	88	12.78	16.95	14.69	.....	.....	.....
1867-70....	127	97	112	15.66	21.72	18.70	1.815	33.93	101
1871-74....	118	102	109	14.59	22.79	18.28	1.657	30.35	103
1875-78....	93	83	86	11.53	18.46	14.35	2.022	29.13	66
1879-82....	128	95	107	15.85	21.18	18.00	2.075	37.35	65
1883-86....	89	80	81	11.06	17.73	13.56	2.251	30.51	60
1887-90....	101	77	86	12.52	17.19	14.45	2.059	29.75	57
1891-94....	98	68	81	12.14	15.26	13.50	2.115	28.54	46
1862-66....	103	76	88	12.78	16.95	14.69	.....	.....	.....
1867-73....	119	100	110	14.78	22.31	18.37	1.761	32.50	102
1874-80....	106	87	93	13.03	19.31	15.62	2.006	31.20	68
1881-87....	105	85	91	12.99	18.98	15.30	2.130	32.59	62
1888-94....	98	72	82	12.13	16.01	13.76	2.110	29.05	50
1862-94....	105	83	91	12.97	18.53	15.32	.....	.....	.....
1867-94....	105	84	92	12.99	18.68	15.38	2.025	31.13	65
1867-78....	109	94	100	13.55	20.85	16.82	1.840	30.96	87
1879-86....	107	87	93	13.20	19.37	15.59	2.168	34.08	61
1887-94....	100	72	83	12.32	16.15	13.95	2.088	29.11	51
1867-78....	109	94	100	13.55	20.85	16.82	1.840	30.96	87
1879-82....	128	95	107	15.85	21.18	18.00	2.075	37.35	65
1883-94....	96	75	79	11.89	16.61	13.18	2.138	29.55	54
1867-80....	111	93	100	13.72	20.69	16.77	1.894	31.80	81
1881-94....	101	78	86	12.54	17.29	14.48	2.119	30.80	55
1876-78....	90	81	86	11.29	18.12	14.41	2.041	28.71	63
1893-95....	85	62	72	10.48	13.90	12.00	1.966	25.71	46

## CHAPTER XIV.

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### COTTON AND ITS COMBINATION WITH THE NINE OTHER AGRICULTURAL STAPLES.

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#### METHOD OF COMPILING COTTON STATISTICS.

The Agricultural Department of the United States has gathered and published for a few years statistics of cotton by states in a manner similar to those for other crops. But such statistics have not been published for more than one-half the years from 1862 to the present time. They cannot, therefore, be used in such a study as the one made in this report. For the purposes of this report use is made of the published commercial movement for cotton in the year ending August 31st. These are compiled by the New York Shipping and Commercial List, the New York Commercial and Financial Chronicle, the National Cotton Exchange, and the New Orleans Cotton Exchange. The compilation for this commercial movement of cotton is found in the statistical abstract of the United States Treasury Department. For the uses of this report the bales and gross weight of this crop are reduced to net weight in pounds, and the pounds reduced to tons, so as to combine this crop with the other nine in one grand total. The figures for cotton are not given before 1867, and are of an uncertain nature for a year or two after that date. In the table for this report the figures for cotton are given, not as in the statistical abstract, under the fiscal year closing August 31st, but in the calendar year preceding. This is for the purpose of consolidating the cotton each year with the other crops produced in the same season. Thus the figures given in the statistical abstract for 1895 are found in Table (a) of this chapter for 1894. It is the same for all other years.

#### INCREASING PRODUCTION AND DECREASING PRICE OF COTTON.

The maximum net gold average price of cotton shown in the table is found in 1871. The price had increased from 1867 until 1872, and thereafter declined almost continuously until the present



time. In the earlier years, with a high average price, the per capita product was very small. In 1867 and 1868 it was less than one-half of what it was in 1895 and 1894, respectively. The small relative quantity of the crop, when considering the demands of the nation and the world produced a high average price. That price stimulated the production, and it increased much faster than the population of the United States or than the population of Europe, to which is shipped about one-half of the crop for final consumption. This great relative increase in cotton production caused, as it does for all crops, a fall in price. That fall and the increased per capita production of cotton are shown in Table (a). A summary is here presented, changing, however, the per capita product of the table from tons to pounds.

YEARS.	Average Gold Value Per Pound, in Cents.	PER CAPITA PRODUCT.	
		Weight in Pounds.	Value.
1867-73.....	15.7	36	\$5.91
1874-80.....	10.5	48	5.06
1881-87.....	9.5	52	4.92
1888-94.....	7.8	58	4.58

The fall in price is greater relatively than the increase in per capita production, and hence the value of that product falls regularly and continuously in the several seven-year periods. There is, then, no such relation of price to value and quantity of per capita product as is found in the nine other crops. The reason for this is the fact that two-thirds of our cotton is exported. The price of cotton in the United States is not determined by the relation of the quantitative production in this country to our population, but by its quantitative production in the world to the total number of consumers in all countries.

In the introductory chapter, in the extract from Professor Rogers, it was stated that, in general, prices tended to fall faster than an increase in relative production. This is the case with cotton, but not with the other crops whose price statistics have been passed in review. With those crops the price varies inversely with the quantity of the per capita product, giving to that product a fixed value in gold, excepting as the foreign demand for agricultural produce is increased or diminished. Doubtless if we could estimate the varying foreign demand for cotton, as can be done for other staples of the farm, the changing price of cotton would be seen to follow a relative change in that demand, in conformity to the law of price movement exhibited by other crops.



## CHANGES IN THE AVERAGE VALUE OF TEN CROPS, INCLUDING COTTON.

On Tables (b) to (f) of this chapter are found the agricultural statistics of the United States, where the figures for cotton, as given in Table (a), are consolidated with those for the nine crops given in the preceding chapter. Table (c) gives the combined product of the ten crops for the Exterior States, or all that part of the Union not included in the ten selected states of the Mississippi Valley. In this group are found all the cotton-growing states. To compare the average price of all crops in this group of Exterior States with those of the ten, use must be made of Table (b) in the preceding chapter. The figures for the ten crops in the nation do not extend back of 1867, since, as has already been mentioned, there are no reliable cotton statistics for the years 1862 to 1866. In considering this fall of price shown in the tables of this chapter for 1867, the fact should never be lost sight of that the period from 1867 to 1874 was one of exceptional high prices, following one of low prices from 1862 to 1865.

## CHANGES IN THE QUANTITY OF THE PER CAPITA PRODUCT.

The changes in the quantity and in the simple gold average value of the per capita product of the ten crops of the United States, according to the published data of the Department of Agriculture, are shown in Table (d) of this chapter. That table also shows the simple average gold value of the ten crops in the nation and in the ten states and in the Exterior States. In Table (j) of the preceding chapter is given the change in the reported average yield per acre of the nine crops. Use is here made of the figures of that average yield to estimate the actual relative changes in the quantity and value of the per capita product. The average yield per acre of the nine crops in the nation for the twenty-eight years 1867-94 was .717 tons. Adding to or subtracting from the quantity and value of the per capita product for any period of years that percentage of their figures which the average yield per acre in said period is above or below the average for twenty-eight years, we have the following summary of results for the ten crops of the United States:

YEARS.	Average Yield Per Acre in Tons.	Simple Average Value Per Ton in Gold.	PER CAPITA PRODUCT.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	.755	\$21.59	1.779	\$38.41	1.690	\$36.47
1874-80.....	.751	17.86	2.030	36.26	1.929	34.45
1881-87.....	.678	17.40	2.156	37.51	2.264	39.38
1888-94.....	.711	15.72	2.139	33.50	2.353	34.00

The corrected value of the per capita product is here seen to be substantially the same for the two seven-year periods, 1874-80 and 1888-94. The other two seven-year periods have values considerably greater, due to the extra foreign demand for American breadstuffs and meat in those periods. The period 1867-73 saw the value of American farm products enhanced by reason of an increased demand for breadstuffs and a slight increase in the demand for meat products. The second period of high average prices and values for the total of farm products saw an increase in the foreign demand for both breadstuffs and meat products. Hence the greater elevation in the relative value of the total of American farm products which is recorded in those years. The elevation of the prices for the years included in the period 1881 to 1887 above the preceding and the decline to the following is for the ten great crops included in the tables of this chapter over four dollars per capita per annum, or a total of about \$350,000,000. Here is the secret and the measure of the discontent of American farmers over changed farm prices. The discontent is based upon actual facts of price decline from 1881, but a price decline that has no relation to the silver legislation of 1873, since such legislation could not have at once caused the high and low prices that have been recorded in the United States since 1878.

THE PRICE MOVEMENT FOR TEN CROPS IN SEVENTEEN SELECTED STATES.

is given in Table (e). The seventeen states whose detailed statistics are given for nine crops in the preceding chapter produced eighty per cent of the quantity of those staples. The Southern States included in the list have raised only about thirty-three per cent of the cotton in the past thirty-four years. To show the actual price movement in these seventeen states there should be included in the statistics one-third of the cotton product as given in Table (a). There is included in Table (i) eighty per cent of that product, and for this reason: The figures for the seventeen states for nine crops are the best attainable approximately correct exhibit of the actual price movement in the United States. By combining with the figures for the seventeen states as given in the preceding chapter eighty per cent of the cotton crop from 1867 to 1894 there is obtained, if not an actual, the best attainable approximate exhibit of the corrected price movement in the nation. A summary of this for four-year periods is here given:

YEARS.	CORRECTED AVERAGE GOLD VALUE PER TON.		INDEX NUMBERS FOR TEN CROPS.	
	Nine Crops.	Ten Crops.	To Corrected Values.	According to Relative Importance.
1862-66.....	\$14.30	.....	.....	.....
1867-70.....	17.03	\$20.53	112	108
1871-74.....	16.43	20.05	109	108
1875-78.....	12.19	15.49	85	85
1879-82.....	17.72	18.93	104	102
1883-86.....	13.32	15.40	84	85
1887-90.....	14.17	16.02	89	88
1891-94.....	13.90	15.43	85	81

The results of changing prices for the farmers of the nation as a whole are best shown by the index numbers according to relative importance. The difference between these index numbers and those numbers for corrected values is caused mainly by the increase in cotton production so much faster relatively than the population. The farmer who raised in 1891 to 1894 quantities of cotton and all other crops represented by the average of thirty-four years would realize the same sum that he did in the years 1875 to 1878. This fact is evidenced by the index numbers for the corrected value for those periods. In each it was 84. The average farmer of these seventeen states raised far more cotton in 1894 than in 1874, and hence the index numbers according to relative importance, taking account of this fact, show a decrease from 1884 to 1881 for the two four-year periods, 1875 to 1878 and 1891 to 1894. Cotton has fallen continuously in price from 1872. Other crops fell in price to 1878, after which they show an upward tendency as a whole. The combined crops of cotton and the other nine staples show a great decline from 1867-70 to 1875-78, and thereafter a slight decline or unchanged average value, as the index numbers according to relative importance and those for corrected values are taken as the measure. The decline noted is from the high-priced years 1867 to 1870. There is no measure for the price movement of these ten crops before 1867. As throwing some light upon the same, there is placed in the foregoing exhibit by the side of the corrected values for ten crops those for nine crops, and the figures for the nine are given for the years 1862 to 1866, to show the extent of the rise in 1867 above the earlier conditions.

THE EFFECT OF CHANGING AGRICULTURAL PRICES UPON THE PRODUCERS

is the only part of this or other price investigations that is of vital importance. In preceding pages has been considered the facts gathered from American agriculture of the changes in the price of



American farm staples. What effect have the recorded changes had upon the agricultural workers themselves? In the years covered by the tables of this investigation many and marvelous changes in methods of agricultural work have been introduced. Farm machinery without limit or end has been invented. One man can now in certain branches of farm work do the work formerly requiring the services of several. This fact has stimulated production in most crops, and wherever prices have fallen has had its influence alongside of the effect of changing railway charges and new methods of reducing wheat to flour. Have the farmers gained as much by the introduction of machinery and new methods of farm work as they have lost by changing farm prices? Have the farmers in all sections equally gained or lost by the recent economic changes affecting agriculture, or have some gained and others lost? If some have gained and others lost, in what sections do we find the record of such changes? To answer these questions as fully as possible, Table (f) of this chapter has been compiled. It shows for the ten states, the Exterior States, and the nation the simple average farm gold value of the combined ten crops per ton, and for each male agricultural worker the weight in tons and value of the product raised each year on an average. The figures of the table are all based upon the returns of the Agricultural Department. Those figures are to be taken with the same allowance as all other calculations of total quantities and values based upon the reports of the United States Department of Agriculture. If those reports are uniform for the whole thirty-four years, the figures of Table (f) represent the relative changes in the product raised by the farmers and its values since 1867. The commissioner in charge of this investigation believes that the average returns changed by becoming more accurate. As a result the average reported yield per acre for most crops has decreased, and this fact must be considered in all final calculations concerning the value of an acre's product, the amount and value of the per capita product for the nation, and the amount and value of the average product for each and all agricultural workers in the nation or in any groups of states. The methods used for correcting the averages as reported by the government are for the agricultural workers the same as for the per capita product, already explained. It is used in each of the exhibits given in succeeding pages for the average product per male agricultural worker. Attention will first be called to the results realized by



## THE AGRICULTURAL WORKERS OF THE TEN MISSISSIPPI VALLEY STATES.

For correcting the figures of Table (f) for this group of states use is made of the figures showing the average yield per acre given in Table XIII. (b). The resulting summary for the group is as follows:

YEARS.	Average Yield Per Acre in Tons.	Simple Average Gold Value Per Ton.	PRODUCT FOR EACH MALE AGRICULTURAL WORKER.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1862-66.....	.839	\$12.78				
1867-73.....	.819	14.78	18.182	\$269.09	17.046	\$254.22
1874-80.....	.802	13.03	22.468	292.81	21.660	282.27
1881-87.....	.743	12.99	25.440	331.38	26.457	344.64
1888-94.....	.758	12.13	26.096	316.61	26.618	325.43

The corrected figures show a gain in the quantity produced for each agricultural worker in 1888 to 1894 of fifty-six per cent over that in the period 1867 to 1873. The figures used for the comparison are the averages of seven years of changing conditions. The total change from 1867 to 1894 was therefore much greater than is indicated by this percentage. The total increase in the productive power of the average male agricultural worker in these ten states in twenty-eight years cannot have been less than sixty to sixty-five per cent. The change from 1862 to 1895 was still greater. Starting with the exceptionally high average price that prevailed in the seven years beginning with 1866, the exhibit shows an increase in twenty-eight years in the value of the average annual product for each male agricultural worker in these ten states in nine leading crops from \$254.22 to \$325.43, or about twenty-eight per cent. The product of these crops for each agricultural worker in these ten states during the years 1862 to 1866 could not have averaged sixteen tons, if it exceeded fifteen. This, at the lower average gold values which then prevailed, would give an average product for such workers of from \$180 to \$200. This would give an increase in the value of the product of these nine crops produced by each agricultural worker in these states in thirty years of sixty to seventy-five per cent.

In the calculations given above, and also in those included in Table (f), use is made of the simple average values per ton for the groups and for the nation. Those average values, as has been explained, include in most instances an apparent price decline, caused by the increased production in sections more remote from

markets. The corrected values have been calculated to correct in part at least the possibility of that error. Using these corrected values we have the following statement of the average value of the product per male agricultural worker in the ten states from 1867 to 1894:

YEARS.	Corrected Average Gold Value Per Ton.	CORRECTED PRODUCT FOR EACH MALE AGRICULTURAL WORKER.	
		Weight in Tons.	Value.
1867-73.....	\$14.21	17.046	\$242.22
1874-80.....	12.63	21.660	273.56
1881-87.....	13.37	26.457	353.73
1888-94.....	12.76	26.618	339.84

This shows an increase in the value of the average product for each agricultural worker of a little over forty per cent, from 1867 to 1873 to the period 1888 to 1894. If comparisons could be made with the period 1862 to 1866 an increase twice as great would be shown.

#### THE AGRICULTURAL WORKERS IN THE EXTERIOR STATES.

or the states not included in the group of ten, just considered, do not show as great progress as that found by the analysis of the foregoing tables. The average yield per acre, the simple average value per ton, and the reported and corrected product for each male agricultural worker in this group of states are as follows:

YEARS.	Average Yield Per Acre in Tons.	Simple Average Gold Value Per Ton.	AVERAGE PRODUCT FOR EACH MALE AGRICULTURAL WORKER.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	.695	\$28.88	9.357	\$269.07	8.777	\$252.39
1874-80.....	.688	24.57	9.496	234.09	8.974	222.22
1881-87.....	.598	23.93	10.362	249.11	11.118	267.29
1888-94.....	.654	20.50	11.978	245.85	11.978	245.85

The average yield per acre in this table, as in that for the nation, is for nine crops instead of ten, there being no relative statement for the whole period of the product of cotton per acre. The

value of the average annual product for each male agricultural worker, both as reported and as corrected, shows a decline when comparing the years 1867-73 with 1887 to 1894. There was an increase of over thirty per cent in the amount produced by each worker, but owing to changed railway rates from the Mississippi Valley to the seaboard, the fall in prices for these states more than offset the gain in productive power by the worker, and hence a positive decrease in the average returns for agricultural toil when comparing the first and last period in the table. The years 1891 to 1894 show, however, a slight improvement, and only a slight one, over that of 1874 to 1880. They would doubtless show the same improvement over the year 1862 to 1866 did we possess the data for such comparisons. The contrast between the figures of this table and those for the ten states demonstrates how the loss to the seaboard farmers by falling prices is due in the main to decreasing railway rates. The only fall not caused in this manner is that which dates from the exceptional period of high prices which had its maximum in 1881.

#### THE AGRICULTURAL WORKERS IN THE SEVEN SELECTED STATES.

In the preceding chapter have been given the detailed statistics by states of the combined nine crops in the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California. There has also been given the summary of the same for the whole group. Of these states Georgia and Texas raise large amounts of cotton. They have in the past thirty-five years raised about one-third of the cotton crop of the United States. They raise a larger percentage of that product to-day. By adding to the totals of Table (e) of the preceding chapter one-third of the tonnage and value of the cotton crop of the nation, we obtain an approximate exhibit of the total of the ten leading crops, including cotton, in these states. Such a total forms the basis for calculating the average product per male agricultural worker in these seven states. As the basis for calculating the corrected products use is made of the reported average product per acre of the United States. The resulting summary is as follows for these seven states:

YEARS.	AVERAGE PRODUCT FOR EACH MALE AGRICULTURAL WORKER.			
	As Reported.		As Corrected.	
	Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	11.734	\$301.54	11.147	\$286.47
1874-80.....	13.333	275.26	12.666	261.50
1881-87.....	12.650	281.03	13.282	295.08
1888-94.....	13.666	266.89	13.800	269.56

Here is an increase in the weight of the average product of over twenty per cent, but a decline of from five to eleven per cent in value, according as the one or the other set of figures are chosen. The loss by changing railway rates of transportation counteracts all the benefits that come from more efficient methods of production. An analysis by states would show that the farmers of New York and Pennsylvania, and probably Kentucky as well, had more than held their own. They had gained by improved methods of production more than they had lost by changed railway rates. It has been otherwise with such Southern States as Georgia. The farmers of New York have greatly decreased the relative production of wheat and other staples adversely affected by changing railway rates, and have increased that of hay and potatoes, but little modified in that way. It is otherwise in most of the Gulf States of the South. They still rely upon the old staples which, like wheat, have been lowered in value at the seaboard by changed cost of transportation, and such staples as cotton, that, by greatly increased production, have overstocked the market and thus fallen in price. The farmers in such states suffer the full effect of the losses by modern economic changes affecting the price of agricultural staples. The remedy must in some way come through such a system of diversification of crops, such a change of husbandry, as will minimize for these states on the seaboard the effect of reduced railway rates. In many parts of the East, notably in Maine and Massachusetts, the farmers by such change in the crops raised, by the establishment of canning factories of various kinds and otherwise, have adjusted themselves to the new conditions brought about by the modern use of the railway, and are as prosperous as they ever were, with the possible exception of the single year 1881. The relief in the South must come, if at all, by an application of the same general methods.



## THE AGRICULTURAL WORKERS IN THE NATION AS A WHOLE.

The final relative effect of these economic changes upon the farmers of the United States as a whole may be sought in two ways. We may use the exhibit of the product per worker found in Table (f) for the nation, or use may be made of the more specific and corrected values found in the statistics of the seventeen selected states, producing eighty per cent of all the great staples of the nation, excepting cotton. Both methods will be used here. Use will first be made of the figures of Table (f) for the nation. The figures for the nation are all simple averages, and allow nothing for the increased product upon cheaper and more distant fields. The summary for the nation, using those figures, is as follows:

YEARS.	Average Yield Per Acre in Tons.	Simple Average Gold Value Per Ton.	AVERAGE PRODUCT FOR EACH MALE AGRICULTURAL WORKER.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73.....	.755	\$21.59	12.479	\$269.42	11.856	\$255.95
1874-80.....	.751	17.86	14.258	254.65	13.545	241.92
1881-87.....	.678	17.40	16.069	280.27	16.862	294.40
1888-94.....	.711	15.72	17.347	274.51	17.520	277.25

Here is an increase in the average product from 11,856 to 17,520 tons for each worker, or one of nearly fifty per cent. It is accompanied by a gain of less than ten per cent in the average value of the product of their work when comparing the earlier and the later of these four periods. A part of the actual gain to the farm worker is concealed in these averages by reason of the increased production of all staples upon distant and hence cheap lands. A second comparative exhibit of the relative gain to the farm workers of the nation can be found in an analysis of the figures for the seventeen selected states. In calculating the average product for each farm worker in those states, use is made of the figures given in this chapter of those states, and also of the average reported yield per acre for nine crops in the nation. Using the simple average value of those states, we have the following summary for the seventeen states:

YEARS.	Average Yield Per Acre in Tons.	Simple Average Gold Value Per Ton.	AVERAGE PRODUCT FOR EACH MALE AGRICULTURAL WORKER.			
			As Reported.		As Corrected.	
			Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73 .....	.755	\$20.36	15.41	\$313.79	14.68	\$298.10
1874-80 .....	.751	16.97	18.33	310.85	17.42	295.26
1881-87 .....	.688	16.63	20.19	335.79	21.19	352.38
1888-94 .....	.711	15.27	21.10	322.29	21.31	325.52

Here is indicated an increase in twenty-eight years in the weight of the product for each worker of a little less than fifty per cent and a gain to the worker of a little over ten per cent. As a whole, including an account of the gain in the central West and the loss on the seaboard due to all recent economic changes, the farmers of the nation as workers, when comparing the results of the years 1887-94 with those of any preceding seven-year period, with the exception of that of 1881-87, have gained about ten per cent. When comparisons are made with that period of exceptionally high prices, there has been a loss of nearly ten per cent for each worker. There has been a greater loss in the average per ton, but that loss has been in part balanced by improved methods of farm production.

If use is made of the corrected farm value given in Table (e), we have a confirmation of the foregoing conclusion, as may be noted by the following summary based upon those values:

YEARS.	Corrected Average Value Per Ton.	AVERAGE PRODUCT FOR EACH MALE AGRICULTURAL WORKER.			
		As Reported.		As Corrected.	
		Weight in Tons.	Value.	Weight in Tons.	Value.
1867-73 .....	\$21.16	15.41	\$313.79	14.64	\$309.78
1874-80 .....	16.64	18.33	310.85	17.42	289.86
1881-87 .....	17.58	20.19	335.78	21.19	372.51
1888-94 .....	15.64	21.10	322.29	21.31	333.29

## SUMMARY FOR TEN CROPS.

A review of all the facts presented in this report leads to these conclusions:

1. The United States has in the past thirty-five years seen two periods of exceptionally high prices. The first of these periods extended from 1867 to 1874 and the latter from 1879 to 1882. The high prices for both periods had their cause, mainly, in factors and

conditions outside the United States creating a special foreign demand for the products of American farms.

2. With the exception of those two short periods of marked high prices, farm values in the nation as a whole, as is shown by the detailed statistics for seventeen selected states raising eighty per cent of American farm products, showed a general stability of prices.

3. The corrected average values for the seventeen states which raise eighty per cent of all the farm products of the United States showed a decline, when comparing the period 1862-66 with 1891-94, from \$14.30 to \$13.90 a ton for the nine crops of corn, oats, wheat, rye, barley, buckwheat, hay, potatoes, and tobacco. Like comparison made between the years 1867-70 and those of 1891-94, shows a decline from \$17.03 to \$13.90. Including cotton, the decline indicated by corrected average values is somewhat greater, being for these latter years from \$20.53 to \$15.43. In contrast with the decline shown by the foregoing exhibit of corrected average values, the index numbers for the seventeen states, when calculated according to the relative importance of the several crops in each of the seventeen states, give evidence of an advance on average prices from 1862 to 1866 for all crops excepting cotton of seven per cent.

4. There was for all crops an advance in average farm values from 1862 to 1867, and later a decline. The greater share of that decline in all crops and combinations of crops took place between 1867 and 1872 to 1878, the decline in some crops ending with 1872 and others not until 1878. After the latter date there has been for most crops a stable value or an upward trend of prices as a whole down to 1895, with the exception of the years of high prices, 1879 to 1882. In the seventeen states, the average price of nine crops in 1875-78 was \$12.19 a ton; in 1891-94 it was \$13.90. For the ten crops including cotton, the corresponding corrected value showed no change, being \$15.49 for the earlier and \$15.45 a ton for the latter of these four-year periods.

5. For all the crops excepting cotton, with changing value per ton and changing amounts of production, there was a tendency always shown for the value of the per capita product to remain constant. The farmer, as a rule, obtained the same for a large as for a small crop.

6. Special conditions, such as increasing foreign demand, have for certain periods, those of 1867-1874 and 1879-1882, raised prices and increased the value of the average per capita product.

7. Prices have in thirty-five years been somewhat enhanced as a whole in the great producing section of the Northwest Mississippi

Valley and have fallen in the states bordering upon the ocean and the gulf. The different price movement in the two sections is due to the influence of changing railway rates. Wheat prices have been greatly disturbed and modified since 1873 by the introduction of new milling inventions and processes. This has greatly reduced the value of winter wheat, without causing any loss to the spring wheat growers. Cotton prices have fallen, owing to the greatly increased relative production of that staple.

8. As a result of modern economic changes the weight of the average product per agricultural worker in the United States has increased in twenty-eight years over fifty per cent. That increase has been greatest in the central states of the West and least in the gulf states of the South.

9. In the exterior or seaboard states the loss by falling prices, caused by reduced railway rates, the effect of recent milling inventions, etc., has balanced the result of improved methods of farming introduced, and left the average farm worker with no increased income. In fact, the average worker in many parts of the South realizes less income for his labor than twenty-five or thirty years ago.

10. The experience of the agricultural worker in the seaboard states, and especially the South, stands in marked contrast with that of the farm worker in the ten Mississippi Valley states, with an increase of fully thirty per cent in the value of the average farm product produced by them.

11. The losses in the seaboard states by recent economic changes are for the farmers of the nation more than balanced by the gain in the interior, and we find that the value of the average product for each agricultural worker was in the nation and in the seventeen selected states, in 1888-89, about ten per cent more than for the high-priced years 1867-73, and in comparison with years other than the high-priced ones of 1879-83 show a far greater gain.

12. With all falls in prices, whether local or general, more than balanced in the United States by the increased productivity of labor, with an increase in the value of the product of the average male worker of fully ten per cent since the high priced year of 1867 and more than three times that increase when comparing the results of the four or seven-year period ending with 1894 with the corresponding period beginning with 1862 it is safer to predicate upon the full facts about American agriculture a depreciation in the purchasing power of gold of from ten to twenty-five per cent since 1873, than to assume the contrary, and declare, as so many have done, an appreciation in that purchasing power.



TABLE XIV. (a).

An exhibit by years and certain periods of years of the total product in pounds and tons of the cotton raised in the United States, together with the total home or farm value in dollars currency and gold, and its average home or farm value per pound and ton in currency and gold, and the weight in tons and value in dollars, gold, of the per capita product of cotton.

YEARS.	TOTAL NET PRODUCT IN		TOTAL VALUE IN DOLLARS.		AVERAGE NET VALUE			PER CAPITA PRODUCT.	
	Pounds.	Tons.	Currency.	Gold.	Per Pound in Cents.		Per Ton in Dolls. Gold.	Weight in Tons.	Value in Dollars.
					Currency.	Gold.			
1867....	1,076,885,599	538,443	220,000,000	158,840,000	20.4	14.8	295.25	.015	4.39
1868....	987,863,409	493,932	225,000,000	165,825,000	22.8	16.8	336.36	.013	4.49
1869....	1,351,732,928	675,866	303,600,000	250,166,400	22.5	18.5	370.07	.018	6.23
1870....	1,903,988,628	951,994	286,000,000	258,258,000	15.0	13.6	271.27	.025	6.70
1871....	1,305,740,189	652,870	288,300,000	264,371,100	22.1	20.3	405.17	.017	6.68
1872....	1,729,423,520	864,712	301,087,500	267,064,613	17.4	15.4	308.74	.021	6.52
1873....	1,830,800,332	915,400	312,480,000	280,294,560	17.1	15.3	306.33	.022	6.75
1874....	1,680,423,955	840,212	256,215,000	227,775,135	15.2	13.6	271.16	.020	5.32
1875....	2,019,688,468	1,009,844	272,936,400	241,821,650	13.5	12.0	239.66	.023	5.50
1876....	1,959,642,222	979,821	229,444,600	215,907,369	11.7	11.0	220.31	.022	4.78
1877....	2,148,239,250	1,074,120	205,000,000	201,925,000	9.5	9.4	188.01	.020	4.36
1878....	2,247,848,665	1,123,925	193,854,641	.....	.....	8.6	172.48	.024	4.07
1879....	2,609,847,156	1,304,923	242,140,987	.....	.....	9.2	185.56	.027	4.96
1880....	3,012,222,000	1,506,111	280,266,242	.....	.....	9.3	186.08	.030	5.59
1881....	2,433,397,408	1,216,698	259,016,315	.....	.....	10.6	212.88	.024	5.05
1882....	3,196,887,760	1,598,444	300,696,500	.....	.....	9.7	193.75	.034	5.89
1883....	2,582,366,400	1,291,183	250,594,750	.....	.....	9.7	194.08	.024	4.67
1884....	2,573,480,415	1,286,740	253,993,385	.....	.....	9.8	197.39	.023	4.64
1885....	2,991,939,405	1,495,970	269,989,912	.....	.....	9.0	180.48	.027	4.81
1886....	2,959,814,585	1,479,907	257,295,327	.....	.....	8.6	173.86	.026	4.48
1887....	3,227,449,514	1,613,724	291,045,346	.....	.....	9.0	180.36	.028	4.96
1888....	3,240,181,430	1,620,090	292,139,209	.....	.....	9.0	180.32	.027	4.87
1889....	3,487,500,594	1,743,750	308,424,271	.....	.....	8.8	176.87	.028	5.03
1890....	4,127,288,769	2,063,644	350,000,000	.....	.....	8.5	169.60	.033	5.55
1891....	4,300,840,404	2,150,420	313,000,000	.....	.....	7.2	145.55	.034	4.91
1892....	3,162,572,280	1,581,826	268,000,000	.....	.....	8.4	169.48	.024	4.10
1893....	3,578,613,258	1,789,306	263,837,000	.....	.....	7.4	147.46	.027	3.95
1894....	4,520,259,495	2,260,130	259,164,640	.....	.....	5.7	114.67	.033	3.59
1867-70.	5,320,470,564	2,660,235	1,034,600,000	833,089,400	19.4	15.6	312.79	.018	5.57
1871-74.	6,546,387,996	3,273,194	1,158,082,500	1,039,505,408	17.7	15.9	317.67	.020	6.31
1875-78.	8,375,418,605	4,187,710	901,235,641	853,508,660	10.8	10.2	203.82	.023	4.55
1879-82.	11,252,354,324	5,626,176	1,091,120,044	.....	.....	10.0	199.39	.028	5.38
1883-86.	11,107,600,805	5,553,800	1,031,873,374	.....	.....	9.3	185.80	.025	4.65
1887-90.	14,082,420,307	7,041,208	1,241,608,826	.....	.....	8.8	176.35	.029	5.12
1891-94.	15,562,285,437	7,781,142	1,104,021,640	.....	.....	7.1	141.89	.029	4.18
1867-73.	10,186,434,605	5,093,217	1,936,467,500	1,603,691,024	19.0	15.7	314.89	.018	5.91
1874-80.	15,677,911,716	7,838,956	1,679,857,870	1,644,819,673	10.7	10.5	209.83	.024	5.06
1881-87.	19,965,835,487	9,982,666	1,891,631,535	.....	.....	9.5	190.50	.026	4.92
1888-94.	26,417,256,250	13,208,626	2,054,585,129	.....	.....	7.8	155.56	.029	4.58
1867-94.	72,246,938,038	36,123,465	7,562,542,025	7,194,727,352	10.5	10.0	199.78	.025	5.03
1867-78.	20,242,277,165	10,121,139	3,093,918,141	2,726,103,468	15.3	13.5	269.35	.020	5.48
1879-86.	22,350,955,129	11,179,976	2,122,993,418	.....	.....	9.5	185.80	.026	4.95
1887-94.	29,644,705,744	14,822,350	2,345,630,466	.....	.....	7.9	158.25	.029	4.63
1867-78.	20,242,277,165	10,121,139	3,093,918,141	2,726,103,468	15.3	13.5	269.35	.020	5.48
1879-82.	11,252,354,324	5,626,176	1,091,120,044	.....	.....	10.0	199.39	.028	5.38
1883-94.	40,752,306,549	20,376,150	3,377,503,840	.....	.....	8.8	165.76	.028	4.63
1867-80.	25,864,346,321	12,932,173	3,616,325,370	3,248,510,697	14.0	12.6	251.20	.022	5.45
1881-94.	46,382,591,717	23,191,292	3,946,216,655	.....	.....	8.5	170.16	.028	4.73
1876-78.	6,355,730,137	3,177,866	628,299,241	611,687,010	9.9	9.6	192.48	.023	4.40
1892-94.	11,261,445,033	5,630,722	791,021,640	.....	.....	7.0	140.48	.028	3.86

TABLE XIV. (b).

An exhibit by years and certain periods of years from 1867 to 1895, inclusive, of the combined product in tons of the corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, tobacco, and cotton raised in the states of the American Union not included in the ten Mississippi states, and referred to in this report as the Exterior States, together with the total home or farm value of said ten crops in currency and gold, and its average home or farm value per ton in gold and currency.

YEARS.	Total Product in Tons.	TOTAL VALUE IN DOLLARS.		AVERAGE VALUE PER TON IN DOLLARS.	
		Currency.	Gold.	Currency.	Gold.
1867.....	34,113,327	1,228,996,656	887,335,586	36.03	26.01
1868.....	35,428,775	1,169,324,994	873,097,976	33.01	24.64
1869.....	35,064,236	1,204,032,302	998,617,474	34.34	28.48
1870.....	34,062,031	1,134,140,437	1,027,804,376	33.30	30.17
1871.....	29,840,657	1,085,078,390	998,913,144	36.36	33.47
1872.....	32,488,997	1,089,021,393	971,568,340	33.52	29.90
1873.....	31,963,070	1,075,580,177	970,881,537	33.65	30.36
1874.....	32,736,998	1,027,698,719	919,468,199	31.40	28.08
1875.....	35,980,289	1,039,162,874	926,887,948	28.88	25.76
1876.....	35,904,495	959,599,218	906,471,510	26.73	25.24
1877.....	39,366,627	922,002,784	908,910,292	23.42	23.09
1878.....	43,250,175	886,523,219	886,523,219	20.50	25.58
1879.....	43,153,575	1,057,461,413	.....	.....	24.50
1880.....	45,635,865	1,177,448,632	.....	.....	25.80
1881.....	38,385,146	1,196,185,707	.....	.....	31.14
1882.....	47,437,452	1,239,066,542	.....	.....	26.12
1883.....	47,329,440	1,114,170,939	.....	.....	23.54
1884.....	48,263,088	1,069,533,485	.....	.....	22.78
1885.....	48,028,868	1,073,699,449	.....	.....	22.36
1886.....	49,076,342	1,062,727,186	.....	.....	21.65
1887.....	53,821,335	1,189,950,841	.....	.....	22.11
1888.....	54,088,002	1,187,909,662	.....	.....	21.96
1889.....	54,312,973	1,149,202,514	.....	.....	21.16
1890.....	50,968,653	1,259,124,456	.....	.....	24.70
1891.....	67,084,027	1,394,446,828	.....	.....	20.79
1892.....	61,713,988	1,171,744,879	.....	.....	18.98
1893.....	60,234,321	1,147,246,363	.....	.....	19.05
1894.....	62,324,893	1,108,599,616	.....	.....	17.79
1895.....	.....	.....	.....	.....	.....
1867-70.....	138,668,369	4,736,494,389	3,786,855,412	34.16	27.31
1871-74.....	127,029,722	4,277,378,679	3,860,331,220	33.67	30.39
1875-78.....	154,501,586	3,807,288,065	3,628,792,969	24.64	23.49
1879-82.....	174,612,038	4,670,162,294	.....	.....	26.75
1883-86.....	192,697,738	4,350,131,059	.....	.....	22.63
1887-90.....	213,190,963	4,786,187,473	.....	.....	22.45
1891-94.....	251,357,229	4,822,037,686	.....	.....	19.18
1867-73.....	232,961,093	7,986,174,349	6,727,718,433	34.28	25.88
1874-80.....	276,028,024	7,069,886,859	6,783,161,213	25.60	24.37
1881-87.....	332,341,641	7,975,344,149	.....	.....	23.93
1888-94.....	410,726,887	8,418,274,318	.....	.....	20.50
1867-94.....	1,252,057,645	31,449,679,675	29,904,498,113	25.11	23.88
1867-78.....	420,199,677	12,821,161,163	11,275,979,601	30.50	26.83
1879-86.....	367,309,776	9,020,293,353	.....	.....	24.56
1887-94.....	464,548,192	9,608,225,159	.....	.....	20.68
1867-78.....	420,199,677	12,821,161,163	11,275,979,601	30.50	26.83
1879-82.....	174,612,038	4,670,162,294	.....	.....	27.75
1883-94.....	657,245,930	13,958,356,218	.....	.....	21.24
1867-80.....	508,989,117	18,056,061,208	13,510,879,646	29.58	26.54
1881-94.....	743,068,528	16,393,618,467	.....	.....	21.92
1876-78.....	118,521,227	2,768,125,221	2,701,905,021	23.28	22.80
1892-94.....	.....	.....	.....	.....	.....

TABLE XIV. (c).

An exhibit by years and certain periods of years of the total product in tons of the combined crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, tobacco, and cotton raised in the United States, together with the total home or farm value of said crops in currency and gold, and their average home or farm value per ton in gold and currency, and the weight in tons and value in dollars, gold, of the per capita product of said crops.

YEARS.	Total Product in Tons.	TOTAL VALUE IN DOLLARS.		AV. VALUE PER TON IN DOLS.		PER CAPITA PRODUCT.	
		Currency.	Gold.	Currency.	Gold.	Weight in Tons.	Value in Do s. Gold.
1867	64,073,099	2,007,462,231	1,449,387,731	31.33	22.62	1.769	40.02
1868	67,898,856	1,819,205,553	1,352,059,948	26.79	19.91	1.836	36.55
1869	69,984,300	1,846,063,518	1,527,651,196	26.38	21.83	1.854	40.47
1870	72,105,093	1,743,561,288	1,578,111,404	24.18	21.89	1.870	40.93
1871	66,793,350	1,665,447,147	1,531,111,294	24.93	22.92	1.689	38.71
1872	72,039,654	1,639,662,158	1,459,986,699	22.76	20.27	1.775	35.98
1873	69,699,748	1,688,365,649	1,520,050,105	24.22	21.81	1.672	36.47
1874	67,613,621	1,709,639,638	1,525,713,676	25.29	22.57	1.580	35.66
1875	87,218,006	1,752,196,364	1,558,635,620	20.09	17.87	1.984	35.45
1876	87,450,175	1,588,806,086	1,498,555,173	18.17	17.14	1.937	33.20
1877	94,799,891	1,629,355,528	1,605,652,745	17.19	17.04	2.045	34.85
1878	104,817,585	1,500,729,438	1,500,729,438	14.32	14.32	2.202	31.53
1879	107,077,185	1,946,776,873	.....	.....	18.18	2.191	39.83
1880	110,573,127	2,145,237,234	.....	.....	19.40	2.205	42.78
1881	93,285,066	2,287,768,558	.....	.....	24.52	1.818	44.58
1882	115,636,762	2,287,842,846	.....	.....	19.78	2.203	43.58
1883	122,017,484	2,043,499,491	.....	.....	16.75	2.273	38.07
1884	133,302,802	1,954,128,655	.....	.....	14.66	2.427	35.58
1885	129,094,674	1,924,308,445	.....	.....	14.91	2.299	34.28
1886	121,339,795	1,890,806,994	.....	.....	15.58	2.114	32.94
1887	114,525,494	2,041,258,998	.....	.....	17.83	1.952	34.80
1888	136,621,088	2,145,974,426	.....	.....	15.71	2.228	35.00
1889	139,415,056	2,014,803,563	.....	.....	14.45	2.275	32.87
1890	115,905,891	2,253,443,363	.....	.....	19.46	1.851	36.02
1891	158,496,075	2,596,999,636	.....	.....	16.38	2.478	40.59
1892	141,726,949	2,145,287,551	.....	.....	15.12	2.167	32.76
1893	143,475,385	2,024,346,273	.....	.....	14.11	2.147	30.29
1894	123,371,828	1,890,037,435	.....	.....	15.32	1.897	27.68
1895	.....	.....	.....	.....	.....	.....	.....
1867-70	274,061,348	7,416,292,590	5,907,210,279	27.06	21.55	1.833	39.50
1871-74	276,146,873	6,703,114,592	6,036,861,774	24.27	21.86	1.677	36.66
1875-78	374,285,657	6,471,087,416	6,163,572,976	17.29	16.47	2.045	33.68
1879-82	426,572,140	8,667,625,511	.....	.....	20.32	2.103	42.73
1883-86	505,754,755	7,812,741,685	.....	.....	15.45	2.276	35.16
1887-90	506,465,529	8,457,480,350	.....	.....	16.70	2.088	34.87
1891-94	567,070,237	8,654,670,895	.....	.....	15.26	2.144	32.72
1867-73	482,594,600	12,409,767,544	10,418,358,377	25.71	21.59	1.779	38.41
1874-80	659,549,590	12,272,741,161	11,781,300,759	18.60	17.86	2.030	36.26
1881-87	829,202,077	14,429,612,087	.....	.....	17.40	2.156	37.51
1888-94	959,010,272	15,070,892,247	.....	.....	15.72	2.139	33.63
1867-94	2,930,356,539	54,183,013,039	51,700,163,470	18.49	17.64	2.050	36.16
1867-78	924,493,878	20,590,494,598	18,107,645,029	22.27	19.59	1.860	36.44
1879-86	932,326,895	16,480,367,196	.....	.....	17.79	2.194	39.03
1887-94	1,073,535,766	17,112,151,245	.....	.....	15.94	2.117	33.74
1867-78	924,493,878	20,590,494,598	18,107,645,029	22.27	19.59	1.860	36.44
1879-82	426,572,140	8,667,625,511	.....	.....	20.32	2.103	42.73
1883-94	1,579,200,521	24,924,892,930	.....	.....	15.78	2.166	34.18
1867-80	1,142,144,190	24,682,508,705	22,199,659,136	21.61	19.44	1.916	37.25
1881-94	1,788,212,349	29,500,504,334	.....	.....	16.55	2.147	35.53
1876-78	287,067,651	4,718,891,052	4,604,937,356	16.43	16.04	2.064	33.11
1892-94	408,574,162	6,057,671,259	.....	.....	14.83	1.994	29.57



TABLE XIV. (d).

An exhibit by years and certain periods of years, from 1862 to 1895, inclusive, of the index numbers for cotton and for the combined product of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, tobacco, and cotton raised in the ten Mississippi Valley states, the Exterior States, and in the nation, together with the simple gold farm value per ton of said combined crops in the nation and in the groups of states mentioned, and the weight in tons, and its value in dollars, gold, of the per capita product of these ten crops in the nation.

YEARS.	INDEX NUMBERS.			GOLD VALUES PER TON IN DOLLARS.			PER CAPITA PRODUCT.		Index Numbers for Cotton.
	Ten States.	Exterior States.	Nation.	Ten States.	Exterior States.	Nation.	Weight in Tons.	Value in Dollars, Gold.	
1862.....	71			8.81					
1863.....	115			14.25					
1864.....	115			14.29					
1865.....	93			11.50					
1866.....	127			15.68					
1867.....	152	87	112	18.76	26.01	22.62	1.769	40.02	96
1868.....	119	82	98	14.75	24.64	19.91	1.836	36.55	109
1869.....	122	95	108	15.15	28.48	21.83	1.854	40.47	120
1870.....	109	101	108	14.47	30.17	21.89	1.870	40.93	88
1871.....	109	112	113	14.40	33.47	22.92	1.689	38.71	131
1872.....	100	100	100	12.35	29.90	20.27	1.775	35.98	100
1873.....	118	102	108	14.57	30.36	21.81	1.672	36.47	99
1874.....	141	94	111	17.38	28.08	22.57	1.580	35.66	88
1875.....	100	86	88	12.33	25.76	17.87	1.984	35.45	78
1876.....	93	84	85	11.49	25.24	17.14	1.937	33.20	71
1877.....	102	77	84	12.57	23.09	17.04	2.045	34.85	69
1878.....	81	86	71	9.98	25.58	14.32	2.202	31.53	56
1879.....	113	82	90	13.91	24.50	18.18	2.191	39.83	60
1880.....	124	86	96	15.30	25.80	19.40	2.205	42.78	60
1881.....	161	104	121	19.88	31.14	24.52	1.818	44.58	69
1882.....	126	87	98	15.38	26.12	19.78	2.203	43.58	63
1883.....	101	79	83	12.44	23.54	16.75	2.273	38.07	63
1884.....	82	76	72	10.05	22.78	14.66	2.427	35.58	64
1885.....	83	75	74	10.49	22.36	14.91	2.299	34.28	58
1886.....	93	72	77	11.46	21.65	15.58	2.114	32.94	56
1887.....	114	74	88	14.02	22.11	17.83	1.952	34.80	58
1888.....	94	73	78	11.61	21.96	15.71	2.228	35.00	58
1889.....	83	71	71	10.71	21.16	14.45	2.275	32.87	57
1890.....	124	83	96	15.34	24.70	19.46	1.851	36.02	55
1891.....	106	70	81	13.16	20.79	16.38	2.478	40.59	47
1892.....	98	63	75	12.14	18.98	15.12	2.167	32.76	55
1893.....	85	64	70	10.54	19.05	14.11	2.147	30.29	48
1894.....	104	59	76	12.80	17.79	15.32	1.807	27.68	37
1895.....	81			9.93					
1862-66.....	103			12.78					
1867-70.....	127	91	106	15.66	27.31	21.55	1.833	39.50	101
1871-74.....	118	102	108	14.59	30.39	21.86	1.677	36.66	103
1875-78.....	93	79	81	11.53	23.49	16.47	2.045	33.68	66
1879-82.....	128	89	100	15.85	26.75	20.32	2.103	42.73	65
1883-86.....	89	76	76	11.06	22.63	15.45	2.276	35.16	60
1887-90.....	101	75	82	11.52	22.45	16.70	2.088	34.87	57
1891-94.....	98	64	75	12.14	19.18	15.26	2.144	32.72	46
1862-66.....	103			12.78					
1867-73.....	119	97	107	14.78	28.88	21.59	1.779	38.41	102
1874-80.....	106	82	88	13.03	24.57	17.86	2.030	36.26	68
1881-87.....	105	80	86	12.99	23.93	17.40	2.156	37.51	62
1888-94.....	98	69	78	12.13	20.50	15.72	2.139	33.63	50
1862-94.....	105			12.97					
1867-94.....	105	80	87	12.99	23.88	17.64	2.050	36.16	65
1867-78.....	109	90	97	13.55	26.83	19.59	1.860	36.44	87
1879-86.....	107	82	88	13.20	24.56	17.79	2.194	39.03	61
1887-94.....	109	69	79	12.32	20.68	15.94	2.117	33.74	51
1867-78.....	109	90	97	13.55	26.83	19.59	1.869	36.44	87
1879-82.....	128	93	100	15.85	27.75	20.32	2.103	42.73	65
1883-94.....	96	71	78	11.80	21.24	15.78	2.166	34.18	54
1867-80.....	111	89	96	13.72	26.54	19.44	1.916	37.25	81
1881-94.....	101	73	82	12.54	21.92	16.55	2.147	35.53	55
1873-78.....	90	76	79	11.29	22.80	16.04	2.064	33.11	63
1893-95.....	87		73	10.48		14.83	1.994	29.57	46



TABLE XIV. (e).

An exhibit by years and certain periods of years from 1867 to 1895, inclusive, of the total product in tons of the ten crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, tobacco, and cotton raised in the seventeen States of Ohio, Indiana, Illinois, Michigan, Iowa, Wisconsin, Minnesota, Missouri, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with its total value in dollars, currency, and its simple and corrected home or farm value per ton in gold and currency, and index numbers calculated by different methods.

YEARS.	Total Product in Tons.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS PER TON.			INDEX NUMBERS TO			
			Cur- rency.	Gold.	Cor- rected Values	Simple Gold Values	Cor- rected Values	Average Seventeen States.	According to Relative Importance
1867-70. ....	211,722,730	5,479,928,724	25.88	20.67	20.53	109	112	120	108
1871-74. ....	224,708,481	5,143,973,238	22.89	20.67	20.05	109	109	114	108
1875-78. ....	313,726,943	5,059,989,561	16.13	15.39	15.49	82	85	92	85
1879-82. ....	354,384,165	6,922,270,444	.....	19.53	18.93	103	104	112	102
1883-86. ....	420,531,965	6,127,402,888	.....	14.57	15.40	72	84	91	85
1887-90. ....	403,331,704	6,482,786,620	.....	16.07	16.02	85	89	96	88
1891-94. ....	441,374,658	6,618,008,130	.....	14.99	15.43	79	85	93	81
1867-73. ....	381,812,571	9,292,013,224	24.34	20.36	21.16	108	110	115	107
1874-80. ....	549,358,461	9,649,931,836	17.54	16.97	16.64	89	91	100	90
1881-87. ....	681,957,406	11,341,085,500	.....	16.63	17.58	88	93	100	93
1888-94. ....	756,652,208	11,560,329,045	.....	15.27	15.64	81	86	95	80
1867-94. ....	2,369,780,646	41,834,359,605	17.65	16.88	16.83	89	92	92	92
1867-78. ....	750,158,154	15,683,891,523	20.91	18.46	.....	92	.....	.....	99
1879-86. ....	774,916,129	13,049,673,332	.....	16.84	.....	88	.....	.....	93
1887-94. ....	844,706,362	13,100,794,750	.....	15.51	.....	82	.....	.....	84
1867-78. ....	750,158,154	15,683,891,523	20.91	18.46	.....	92	.....	.....	99
1879-82. ....	354,384,164	6,922,270,444	.....	19.53	.....	103	.....	.....	102
1883-94. ....	1,265,238,327	19,228,197,658	.....	15.20	.....	80	.....	.....	85
1867-80. ....	931,171,029	18,932,945,060	20.33	18.36	.....	92	.....	.....	98
1881-87. ....	1,438,609,612	22,901,414,545	.....	15.92	.....	84	.....	.....	88
1876-78. ....	241,512,950	3,691,554,671	15.29	14.92	15.61	78	85	89	83
1893-95* .....	322,954,995	4,143,047,558	.....	12.00	13.71	68	75	90	71
1872. ....	58,669,518	1,239,666,752	21.13	18.84	18.35	100	100	100	100
1895* .....	114,725,803	1,326,944,082	.....	11.54	11.86	62	67	71	64

\*Includes the figures for 1894 for cotton instead of for 1895.

TABLE XIV. (C).

An exhibit by years and certain periods of years, from 1867 to 1895, inclusive, of the simple average home or farm gold value of the ten crops of corn, oats, wheat, rye, barley, buckwheat, potatoes, hay, tobacco, and cotton grown in the ten states, the Exterior States, and nation, together with the total weight in tons and value in dollars, gold, of the combined product of these ten crops, in the groups of states and the nation mentioned, produced on an average annually by each male agricultural worker.

YEARS.	TEN STATES.			EXTERIOR STATES.			NATION.		
	Average Value Per Ton.	Product per Agricultural Worker.		Average Value Per Ton.	Product per Agricultural Worker.		Average Value Per Ton.	Product per Agricultural Worker.	
		Weight in Tons.	Value in Dollars.		Weight in Tons.	Value in Dollars.		Weight in Tons.	Value in Dollars.
1867.....	18.76	16,827	315.67	26.01	10,175	264.65	22.62	12,490	282.52
1868.....	14.75	17,676	260.73	24.64	10,344	255.91	19.91	12,913	257.10
1869.....	15.15	18,425	279.13	28.48	10,032	285.70	21.83	12,984	283.44
1870.....	14.47	19,455	281.41	30.17	9,541	287.90	21.89	13,051	285.69
1871.....	14.40	18,316	263.79	33.47	8,184	273.95	22.92	11,795	270.34
1872.....	12.35	18,999	234.67	29.90	8,724	260.89	20.27	12,410	251.55
1873.....	14.57	17,575	255.94	30.36	8,405	255.14	21.81	11,712	255.44
1874.....	17.38	15,739	273.60	28.08	8,428	236.72	22.57	11,084	250.17
1875.....	12.33	22,406	276.32	25.76	9,072	233.61	17.87	13,948	249.25
1876.....	11.49	21,852	251.00	25.24	8,864	223.78	17.14	13,645	233.87
1877.....	12.57	22,776	286.23	23.09	9,518	219.74	17.04	14,429	245.87
1878.....	9.98	24,519	244.61	20.58	10,219	209.90	14.32	15,565	222.89
1879.....	13.91	24,673	343.26	24.50	10,008	245.24	18.18	15,512	282.02
1880.....	15.30	24,293	371.68	25.80	10,364	267.39	19.40	15,626	303.17
1881.....	19.88	20,322	404.00	31.14	8,634	268.86	24.52	13,051	320.07
1882.....	15.38	24,979	384.17	26.12	10,568	276.04	19.78	16,018	316.92
1883.....	12.44	27,067	336.78	23.54	10,443	245.84	16.75	16,734	280.25
1884.....	10.05	30,493	306.44	22.78	10,547	240.28	14.66	18,099	265.33
1885.....	10.49	23,762	301.79	22.36	10,394	232.37	14.91	17,354	258.68
1886.....	11.46	25,369	290.76	21.65	10,520	227.81	15.58	16,148	251.64
1887.....	14.02	21,087	295.72	22.11	11,425	252.60	17.83	15,091	268.98
1888.....	11.61	28,367	329.34	21.96	11,371	249.74	15.71	17,822	280.06
1889.....	10.17	28,941	294.37	21.16	11,309	239.23	14.45	18,005	260.21
1890.....	15.34	21,851	335.26	24.70	11,511	259.67	19.46	14,820	301.17
1891.....	13.16	30,435	400.45	20.79	13,702	284.81	16.38	20,065	328.78
1892.....	12.14	26,360	320.07	18.98	12,453	237.01	15.12	17,762	268.62
1893.....	10.54	27,072	285.25	19.05	12,084	230.15	14.11	17,803	250.57
1894.....	12.80	19,644	251.51	17.79	12,383	220.27	15.32	15,155	232.17
1867-70....	15.66	18,096	283.91	27.31	10,033	273.83	21.55	12,895	277.89
1871-74....	14.59	17,657	257.19	30.39	8,449	256.36	21.86	11,750	256.85
1875-78....	11.53	22,888	264.31	23.49	9,418	221.57	16.47	14,397	237.22
1879-82....	15.85	23,567	375.78	26.45	9,899	264.38	20.32	15,052	305.54
1883-86....	11.06	27,923	308.94	22.63	10,476	236.57	15.45	17,084	263.98
1887-90....	12.52	25,061	313.67	22.45	11,154	250.33	16.70	16,434	277.60
1891-94....	12.14	25,878	314.32	19.18	12,663	243.06	15.26	17,696	270.04
1867-73....	14.78	18,182	269.09	28.88	9,357	269.07	21.59	12,479	269.42
1874-80....	13.03	22,468	292.81	24.57	9,496	234.09	17.86	14,258	254.65
1881-87....	12.99	25,440	331.38	23.93	10,362	249.11	17.40	16,069	280.27
1888-94....	12.13	26,096	316.61	20.50	11,978	245.85	15.72	17,347	274.51
1867-94....	12.99	23,521	305.46	23.88	10,409	248.61	17.64	15,038	265.27
1867-78....	13.55	19,760	267.65	26.83	9,300	249.11	19.59	13,014	254.94
1879-86....	13.20	25,745	342.36	24.56	10,187	250.48	17.79	16,068	284.76
1887-94....	12.32	25,470	314.00	20.68	11,908	246.69	15.94	17,065	273.82
1867-78....	13.55	19,760	267.65	26.83	9,300	249.11	19.59	13,014	254.94
1879-82....	15.85	23,567	375.78	27.75	9,899	264.38	20.32	15,052	305.54
1883-94....	11.89	26,287	312.31	21.24	11,431	243.32	15.78	17,071	270.54
1867-80....	13.72	20,564	282.29	26.54	9,430	250.30	19.44	13,368	259.87
1881-94....	12.54	25,768	324.00	21.02	11,170	247.48	16.55	16,708	277.39
1876-78....	11.29	23,049	260.56	22.80	9,534	217.87	16.04	14,546	233.32
1892-95*	10.92	24,412	266.68	.....	.....	.....	14.83	16,907	250.45

\*Including cotton figures for 1894 instead of 1895.

## CHAPTER XV.

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### LIVE STOCK FOR THE TEN MISSISSIPPI VALLEY STATES.

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#### THE IMPORTANCE OF LIVE STOCK IN A PRICE INVESTIGATION.

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The prosperity of a few farmers in the United States may be measured by the price of a single crop, as that of wheat or cotton. For those farmers the results of recent economic changes affecting prices are all summed up by giving for their special localities the varying farm prices of those given staples. It is otherwise with the average farmer of the nation, and for the good and successful farmer in the most progressive farming sections of the country. For the average farmer, for the farmer with a properly diversified system of crops, the measure of his prosperity or adversity can only be found in the average farm value of all the salable products of the farm, including not only such staples as have been considered in the preceding chapters, but also all the live stock raised on the farm. The total value of the ten crops whose statistics have been given annually amount to a vast sum at the prices and values returned by the Agricultural Department. But the farmer, instead of wholly disposing of his largest and most valuable crops of hay, corn, and oats by sale, finds his best market on the farm, by turning them into live stock and dairy and wool products. By this means he doubles the value of the total annual output of the farm. All these forms which the labor of the farmer takes as its products leave his hands by final sale must be considered in forming a correct judgment of the actual average movement of the prices in agriculture. The varying sums realized by the farmers from the sale of hogs are about as great as from the sale of either cotton or wheat. The dairy products are about the same in value, and the beef products amount to an enormous sum each year. The varying prices of meat, butter, and wool in the markets of consumption are no measure of the varying farm values of those articles, any more than the selling price in Liverpool of wheat is a measure of the money returns from his harvest for the wheat farmer of Iowa or Dakota. The farm prices are the only



measure of the changing value of live stock, as of the crops raised on the farm. Those farm values have been given each year since 1865 by the United States Department of Agriculture. They are summarized in the present and two succeeding chapters by the same methods as have been employed in preceding chapters for other farm products.

THE PRICES OF LIVE STOCK AND OTHER STAPLES OF THE FARM DETERMINED BY THE SAME FACTORS.

We have seen how, subject to slight variation due to special and transient causes, the farm values of all crops have risen or fallen together. In the same way live stock prices have followed the same general movement. Any factor advancing the value of live stock must sooner or later increase the selling price of all farm products. The reverse is true. Whatever advances or lowers the selling price of corn, oats, wheat, and hay, sooner or later advances or depresses the farm values of all the live stock raised on the farm, and all the secondary products of that live stock, as butter, cheese, meat, etc. No study of farm prices would, therefore, be complete that did not include an exhibit of the farm values of live stock, as well as for the staples grown upon the soil.

LIVE STOCK VALUES AS A CHECK UPON OTHER PRICE STATISTICS.

The values of live stock being so closely dependent upon, and associated with, those of the staples fed to that stock, those values become the best possible check upon the price movement of agricultural products calculated as have those for the staples already passed in review. The changing prices of hogs and beef cattle bear a close relation to those of corn, hay, and oats, and yet there can be no absolutely fixed relation between the value of any animal and any grain and more than between any two crops. The true comparison in a price investigation is to be found in the average for all live stock and the average for all crops raised upon the farm. Such comparisons will be made in this chapter and in the two succeeding ones. First, however, attention will be called to the price movement of each class of live stock, and some of the special causes determining that movement. Attention will first be given to

HORSES.

Horses in the ten Mississippi Valley states show two periods of high average prices that are practically identical with those found in the ten staples already passed in review. Prices averaged low in the war period, 1862 to 1866. They rose during the period 1867 to 1874, then fell for a period of years, and rose from 1879 to 1886, and



thereafter have fallen. The price movement for horses from 1865 to 1895 can be seen by the following exhibit by seven-year periods of the simple and corrected average gold farm values:

YEARS.	Simple Values.	Corrected Values.
1865-67.....	\$51.66	\$52.31
1868-74.....	60.54	60.47
1875-81.....	55.72	55.49
1882-88.....	72.73	72.89
1889-95.....	60.98	61.88

The decline in horses since 1885 has been greater than that of any other kind of live stock, with the exception of mules. Horses and mules in common with all other kinds of live stock and all crops raised on the farm, advanced in value in the period, 1880 to 1884, with the exceptional foreign demand which then existed for American breadstuffs and meat products in Europe. Their prices in common with the others declined with the restrictions placed upon that demand by hostile foreign customs regulations. In addition, the prices of horses and mules have been specially depressed for the past five or six years by the decreased demand for those animals due to the general introduction of electricity and other mechanical motive power upon street railways and upon the general use of the bicycle.

#### INDEX NUMBERS CALCULATED BY DIFFERENT METHODS.

are given in connection with live stock, as for the other farm products. The sets of index numbers obtained by four different calculations agree more fully than was the case with the other products. This is especially the case in summaries for the different animals. This agreement is less marked for the summaries of all kinds of live stock for a given state or group. The price movement for any given animal is substantially the same for all states. It is less modified by changing railway rates than are the staples of the soil. Hence, the marked agreement for the index numbers calculated by different methods for any animal. The price movement for different animals varies somewhat, and hence there is less agreement in the index numbers for all animals than for any given animal in a group of states. The agreement concerning the price movement of horses in the ten states shown by the four sets of calculated index numbers is presented by the following summary by seven-year periods:

Years.	INDEX NUMBERS.			
	1	2	3	4
1865-67.....	85	88	89	84
1868-74.....	100	101	102	100
1875-81.....	92	93	94	91
1882-88.....	120	121	121	122
1889-95.....	101	103	103	103

The first set corresponds to the simple average gold values of horses in the ten states. The figures in column (2) correspond to the corrected gold average value. Those under (3) are the average of the ten sets of index numbers for the individual states. Those under (4) are the numbers calculated according to relative importance. The only marked difference in the four sets are found in the first period in which the calculations for (2) and (3) unduly magnify the importance of the small amount of high-priced stock in the new states of Kansas, Nebraska, and Minnesota. The average price of horses in 1889-95 was, according to the different methods of calculation relied upon, from fourteen to seventeen per cent higher than for the years 1865 to 1867. If comparisons were made with the four years ending with 1895, the figures would show a decline of from two to six per cent. The prices of 1896 mark a fall of from six to ten per cent from those of 1865. In those last figures we find a record of the great and special decline in the price of horses due to the use of the bicycle and the introduction of mechanical motive power on street railways. The general fact is, however, to be noted, that, prior to the influence of these two factors, the average price of horses in the ten states was tending upward even more markedly than was the price of farm staples. The relative rise of the price of horses with the periods 1868 to 1874 and 1882 to 1888, and the subsequent fall in each case, is substantially the same as that for all farm products.

## MULES.

The simple and corrected average value for mules by seven-year periods was for the ten states as follows:

YEARS.	AVERAGE GOLD VALUES.	
	Simple Values.	Corrected Values.
1865-67.....	\$62.76	\$63.18
1868-74.....	68.80	68.46
1875-81.....	59.19	59.34
1882-88.....	78.88	78.73
1889-95.....	64.42	64.94

Here is an increase in the latter period over the first, and a fall when compared with the two periods of exceptionally high prices. The detailed figures for the separate years show the special fall noted for horses in the last two years. The agreement in the results obtained by the different calculations for index numbers is shown for mules in the following summary:

YEARS.	INDEX NUMBERS.			
	1	2	3	4
1865-67.....	93	95	91	94
1868-74.....	102	103	101	102
1875-81.....	87	90	94	89
1882-88.....	117	118	119	118
1889-95.....	96	97	99	96

Here is shown an increase, but a smaller one than for horses. The index numbers are obtained by the several calculations explained under horses.

#### MILCH COWS.

The price movement for cows shows in the Mississippi Valley the same two periods of high price and the same uniformity of value in other periods as was recorded for farm products generally in the same sections. The average price of a dairy cow in these states in 1865 to 1867 was \$23.10, and in 1892 to 1895 it was \$22.88, or a variation of only twenty-two cents, or less than one per cent. The average price in 1888 to 1891 was \$22.99, and from 1872 to 1875 was \$24.54. The advance that came in 1881 is shown by the high average of 1880 to 1883 of \$30.31, the highest of any four-year period. The farm value for cows, January, 1896, had not like those for horses and mules, declined from the average of the four-year period. On the contrary, it had advanced, and was \$24.44, or \$1.56 cents above the average for the preceding eight years, and above the average for thirty-four years. The high-priced periods, 1868 to 1871 and 1880 to 1883, are not included in the calculation.

#### OXEN AND OTHER CATTLE.

not included in the classification milch cows, show a more marked advance in average farm values than do cows. The amount of that advance and the relation of the price movement of fat cattle to the two periods of special foreign demand for American food products are shown in the following summary by index numbers, calculated by the four methods and referred to by the same numbers as before:

YEARS.	INDEX NUMBERS.			
	1	2	3	4
1865-67.....	76	76	78	75
1868-74.....	101	101	102	102
1875-81.....	90	94	92	93
1882-88.....	115	118	118	118
1889-95.....	85	89	88	89

The corrected average value for oxen in 1865 to 1867 was \$15.74; from 1876 to 1879 it was \$18.59, and from 1892 to 1895 it was \$18.18. For 1896 this average advanced, and was \$19.64, or seven per cent above the average, for the seven years, 1889 to 1895, which had preceded. This advance, both of cows and fat cattle, January, 1896, over the average for the preceding seven years, and over the average of thirty-four years, if four special years of high prices are excluded, indicate the general trend of farm values when they are not subject to special causes such as those affecting horses and mules and those for perishable crops by the panic of 1893.

## SHEEP.

This animal, valuable for its wool as well as for its meat, exhibits a price movement unlike that of other live stock. Its gold average value in the Mississippi states was high in the years 1865 to 1867, then dropped over thirty per cent. The simple average price in 1865 to 1867 was \$2.60, and for the next four years it was \$1.62. After 1870 the average price of sheep in the ten states steadily, and almost uninterruptedly, rose until 1893, when the Wilson tariff legislation depressed the price of wool and of sheep. The simple and corrected average values for sheep by seven-year periods are summarized as follows:

YEARS.	AVERAGE VALUES IN GOLD.	
	Simple Value.	Corrected Value.
1865-67.....	\$2.61	\$2.60
1868-74.....	1.92	1.94
1875-81.....	2.41	2.41
1882-88.....	2.50	2.54
1889-95.....	2.73	2.75

The corresponding price from Jan. 1, 1896, was \$2.03, or a decline of twenty-five per cent. That this recent decline has no relation to the silver legislation of 1873 is conclusively shown by the fact, that, although sheep prices, from 1893 to 1896, declined twenty-



five per cent, the prices at present in the Mississippi Valley are higher than those of 1868 to 1874. The index numbers for sheep by the four methods are for seven-year periods, as follows:

YEARS.	INDEX NUMBERS.			
	1	2	3	4
1865-67.....	105	103	105	103
1868-74.....	77	77	80	77
1875-81.....	96	96	95	92
1882-88.....	100	100	98	99
1889-95.....	110	110	107	109

## SWINE.

In many respects the hog is the most important farm animal. Its average price measures, for the successful farmer, better than any other staple, the rise or fall of farm conditions. The price of hogs in the Mississippi Valley has, on an average, been steadily rising for the whole of the thirty-four years covered by the tables of this report. The figures for seven-year periods best illustrate the character and extent of the upward price movement of this animal in the ten selected states. Its summary is as follows:

YEARS.	AVERAGE GOLD VALUES.	
	Simple Averages.	Corrected Averages.
1865-67 .....	\$4.52	\$4.55
1868-74 .....	4.64	4.68
1875-81 .....	5.31	5.28
1882-88 .....	5.91	5.91
1889-95 .....	5.95	5.94

Here is a gain in thirty-three years of over thirty per cent. The table does not show the results of the financial panic of 1893 upon prices. These prices have fallen since 1893, and Jan. 1, 1896, swine had, in these states, an average value of \$4.96, or substantially a dollar less than for the seven years ending with 1894. Even this value was thirty-four per cent greater than in the year 1872, which was made the basis for calculating index numbers in this report. That year was for hogs one of low average value, while for all other kinds of live stock it was exceptionally high as compared with the years immediately preceding or following it. The index numbers for swine, calculated by the four methods already referred to, were for seven-year periods, as follows:

YEARS.	INDEX NUMBERS.			
	1	2	3	4
1865-67.....	127	125	122	126
1868-74.....	130	128	125	131
1875-81.....	148	144	137	146
1882-88.....	166	161	157	159
1889-95.. ..	167	162	155	159

## DESCRIPTION OF TABLES—AMOUNT AND VALUE OF ALL LIVE STOCK.

In presenting the statistics of live stock there is first given, in Tables (a) to (c), an exhibit by states of the values of all live stock. Those statistics are only given, however, for the four and seven-year periods contained in previous chapters, and for the year 1865 to 1873 and 1896. Notice should be taken of the fact that the years for live stock periods differ nominally by one from those of the crops, and for the reason explained at length in the introductory chapter.

In Table (d) is given the simple index numbers for the average price shown for the several animals and states in Tables (a) to (e).

## SUMMARY OF LIVE STOCK BY STATES.

Table (e) contains summaries of all live stock by states. It shows for each year and period of years mentioned the total number of the six kinds of animals, their total value in dollars, currency, their simple currency and gold average values, and their corrected gold average values. The method of calculating these corrected values is the same as for the crops. They show the average value of a fixed number of each kind of animal, the number being in each case the average numbers of that animal in the given state for thirty-three years. Three sets of index numbers are given in this table. The first are index numbers calculated for the simple average gold value; the second are for the corrected average values, and the third are the average of the six sets of simple index numbers for the six kinds of animals in the given states, and shown in Table (d). In these index numbers calculated by different methods is considerable variation, but less than for the nine crops in combination. They show, in connection with the corresponding index numbers in the following, or Table (f), that index numbers, calculated as the mean for several states or articles, are valuable when all are subject to the same general price movement, or all are of about equal relative importance. Those numbers are of but little value in exhibiting price movements when they are used to measure the average price movement of articles of widely differing relative importance, and with values changing in different ways. The corrected average gold values, when com-

paring the years 1865 to 1867 with 1892 to 1895, show a gain in Ohio of eleven points, in Indiana of thirty-four points, in Illinois of twelve points, in Michigan of six points, in Wisconsin of three, in Missouri of four, in Iowa of fourteen, and in Kansas of four. There was a decline in Minnesota of four points, and in Nebraska of seven. This decline in these two states was an apparent one only, being due to the change in the course of years in the relative proportions of the higher and lower priced animals. The simple average value of all live stock in Minnesota increased in value twenty points, while its corrected values showed a decrease of four points.

#### SUMMARIES BY ANIMALS.

In Table (f) is found a summary by animals of all the live stock in the ten states. This table contains all the data found in Table (d), and arranged in the same way, and also a set of index numbers calculated by giving to each animal its relative importance according to the number and value in each year and period. Of those animals, when comparing the first period, 1865 to 1867, with the last four-year period, ending with 1894, there was an advance when these animals were considered, according to relative importance for horses of six points, of oxen of twelve points, of sheep of three, and for swine of forty-three. There was a decline in mules of eleven points, and for milch cows of four. Special attention has already been called to the facts shown in these summaries by animals.

#### SUMMARY FOR ALL LIVE STOCK IN THE TEN STATES

Table (g) contains a summary for all the live stock in the ten states. It gives for that group of states for the special years and periods the total number and total currency farm value of all six kinds of animals. It also gives the simple average currency and gold values for the same and also corrected gold average values. It gives five sets of index numbers. The first four are the same as those in the preceding table, or Table (f). The first is for the simple gold average, the second for the corrected gold average, and the third is the average for the six animals for the ten states. When there are no breaks in the statistics, these third numbers are found by adding together the total index numbers for the given period or year, found in Table (d), and dividing the sum by sixty. The fourth set are numbers calculated according to the relative importance of the several animals in the several states. Before reference is made to the last set of index numbers, attention will first be called to the facts shown by the various average values and the first four sets of index numbers.

## THE ADVANCE IN AVERAGE VALUES OF LIVE STOCK

as a whole is shown in the following summary by seven-year periods:

YEARS.	AVERAGE FARM VALUES IN GOLD.	
	Simple Average.	Corrected Average.
1865-67.....	\$9.48	\$12.96
1868-74.....	12.98	15.08
1875-81.....	14.87	14.17
1882-88.....	17.97	17.79
1889-95.....	16.28	14.82

The index numbers obtained by the four calculations already described show a relative price movement as follows:

YEARS.	INDEX NUMBERS.			
	1	2	3	4
1865-67.....	72	89	112	89
1868-74.....	98	104	103	103
1875-81.....	112	98	101	95
1882-88.....	136	122	124	122
1889-95.....	123	102	106	101

There is here found a practical agreement between the index numbers for corrected values in column (2) and those according to relative importance, column (4). The column for the average of sixty sets of numbers departs at times widely from the others, and in connection with similar index numbers in the preceding part of this report demonstrate, when the facts involved are considered, how little reliance can be placed upon such numbers as measures of the price movement of many objects of different relative importance and with price movements of widely different characteristics. The advance shown by the other sets of index numbers is one of thirteen points, or substantially 14.5 per cent. If the simple average values are taken as a measure of the actual price movement, we have recorded here an advance of fifty-one points, or seventy per cent. The greater relative advance shown by the simple average values is due to the small relative number of horses and other higher priced animals in the earlier years. The change in the relative number of different animals explains the variations between the simple and corrected values.



## THE ANIMALS BROUGHT TO PERFECTION EACH YEAR.

The reports of the United States Agricultural Department give, as do the general tables of this report, an exhibit of the total number of animals on the farms of the United States, January 1st of each year. Those reports do not give any statement of the number brought to perfection, and sold in the markets of the world, consumed, or put to use on the farm. For comparison with the values of the ten crops shown in Tables II. to XIII., use cannot properly be made of these values of all live stock on hand on the farm each year. Those values must be changed either accurately or approximately to the same basis with the crop values. All the corn or wheat or hay raised on the farm each year is practically sold or used and converted into other forms of farm wealth in the succeeding twelve months. That portion of the live stock which is converted into other uses or sold each year is the only part that can properly be compared or consolidated with the farm crop values in a final summary of price movements of all farm products, including live stock. In the total for all animals are included animals of different kinds. At the present time the average hog in the United States is marketed when fourteen months old; the average steer at a little less than three years. The cow begins to give milk at two years of age, but the number of cows each year brought to that age is not one-half of the total number of cows, but a smaller percentage. So with horses and mules. They are made to earn their living when a little over two years of age, but their average life of usefulness is far greater. As an approximate estimate for comparative purposes, the commissioner in charge of this investigation has arbitrarily assumed that the value of the live stock made ready for market or for use upon the farm is for the different animals as follows: For swine it is the same as the value of all hogs reported on the farm January 1st each year. For oxen it is one-half that reported value, for sheep one-third, for horses and mules one-eighth, and for cows one-fifth. By combining the values for the various animals in these relative proportions there is obtained the last column of index numbers shown in Table (g). The next to the last column in the table shows according to relative importance the price movement of animals sold each year in the several states with number and values as given in the Tables (a) to (f). The last shows a price movement such as would come from a sale of that number of swine and one-half the number of oxen, one-third those of sheep, one-fifth of cows, and one-eighth of horses and mules. The proportions chosen may not be the proper ones to measure correctly

the price movement of live stock, as it relates itself to the changing purchasing power of money. The figures are the best approximate to such a measure as could be devised by the commissioner in charge. They are given alongside with the index numbers according to relative importance when full values for all animals are considered. The student can use the results as calculated so far as he deems them reliable measures of the general price movement of the total of live stock. The following summary shows the two sets of index numbers according to relative importance, the first when combining all the live stock reported, the second at the reduced proportion, stated above:

YEARS.	INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.	
	1	2
1865-67.....	89	93
1868-74.....	103	108
1875-81.....	95	108
1882-88.....	122	130
1889-95.....	101	115

Both calculations show an advance in average values, the second showing, however, the larger. Both show the high price following 1880 to 1882, and both call attention to the decline in value that has taken place since those years.

#### COMPARISON OF PRICES OF AGRICULTURAL FARM STAPLES AND LIVE STOCK.

The following summary shows for these ten states a comparison between the price movement of live stock and of the staple crops as the same is expressed by index numbers according to relative importance. In the case of live stock two sets are given, the first (1) with the use of the full value of all live stock, the second (2) with the reduced proportion set forth in the preceding pages:

YEARS.	INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.		
	Nine Crops.	Live Stock.	
		1	2
1865-67.....	95	89	95
1868-74.....	115	103	109
1875-81.....	103	95	107
1882-88.....	110	122	130
1889-95.....	105	101	112

The figures for the nine crops show when comparing the first and last figures an advance of ten points, the first set for live stock show one of the twelve, while the last presents one of twenty-two. From the three different sets of numbers we are led to the conclusion already stated for the nine crops that there is in the Mississippi Valley a decided upward general trend of prices. This advance since 1862 is not far from ten to fifteen per cent. This general upward price movement in the ten states has been accompanied by two special periods of high prices, and is now connected, and has been since 1894, with a period of low price. These exceptional periods of high and low prices have been in each case produced by special causes of a transient nature. These special variations of advance or fall of farm values in the Mississippi Valley are less on an average than have been found in all countries in the past. They cannot modify the general conclusion which all the facts connected with the nine crops and the six kinds of live stock inevitably lead to. There has been no general fall in average farm gold prices in the Mississippi Valley since 1862 to 1866. Instead, there has been when comparing high priced years or periods with high priced ones, and low with low, or average with average, a rise of not less than ten, and possibly fifteen, per cent in thirty-three years.

TABLE XV. (a).

An exhibit by states for certain years and periods of years, from 1865 to 1896, inclusive, of the total number of horses and mules contained in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with their total farm value in dollars currency, and their average farm value in currency and gold.

## OHIO.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Av. Value.		Number.	Value in Currency.	Average Value.	
			Cur.	Gold.			Currency	Gold.
1865-67...	1,587,519	\$117,547,382	74.05	48.13	23,145	\$2,162,323	93.43	60.73
1868-71...	2,732,250	216,378,976	79.19	63.67	95,928	8,276,893	86.28	69.37
1872-75...	2,969,100	231,195,213	77.87	69.93	90,200	7,226,908	80.12	71.95
1876-79...	3,048,500	190,799,436	62.59	59.59	106,700	6,987,858	65.49	62.35
1880-83...	2,038,000	188,647,669	.....	62.10	86,642	6,019,843	.....	69.48
1884-87...	2,978,213	241,362,085	.....	81.04	91,896	8,153,766	.....	88.73
1888-91...	2,975,547	247,202,617	.....	83.08	97,409	8,487,491	.....	87.13
1892-95...	3,482,310	209,715,251	.....	60.22	77,933	4,992,816	.....	64.07
1865-95...	22,811,439	1,642,848,629	72.02	66.94	669,853	52,307,898	78.09	72.94
1865-67...	1,587,519	\$117,547,382	74.05	48.13	23,145	2,162,323	93.43	60.73
1868-74...	4,948,050	391,626,598	79.15	66.96	163,228	13,814,926	84.64	71.61
1875-81...	5,408,174	339,376,393	62.75	59.74	176,968	11,672,236	65.96	62.79
1882-88...	5,132,995	400,513,061	.....	78.03	155,894	13,388,901	.....	85.88
1889-95...	5,734,701	393,785,195	.....	68.67	150,618	11,269,512	.....	74.82
1865.....	520,497	38,396,820	73.76	34.15	7,539	760,558	100.88	46.71
1873.....	738,600	58,910,736	79.76	69.75	22,600	1,861,562	82.37	73.06
1896.....	771,355	29,218,761	.....	37.88	19,475	801,980	.....	41.18

Percentages a 13.54, b 7.84.

Percentages a 4.71, b 0.23.

## INDIANA.

1865-67...	1,128,210	\$84,344,544	74.76	48.59	64,823	\$5,963,444	92.00	59.80
1868-71...	2,041,793	147,344,241	72.16	58.02	122,268	9,530,178	77.94	62.66
1872-75...	2,644,500	174,571,917	66.01	59.28	188,400	12,818,081	68.04	61.10
1876-79...	2,708,800	146,349,472	54.03	51.44	242,800	14,992,688	61.75	58.79
1880-83...	2,571,765	152,343,169	.....	59.24	216,764	14,642,428	.....	67.55
1884-87...	2,480,711	190,637,993	.....	76.85	216,001	18,189,270	.....	84.27
1888-91...	2,604,976	208,369,560	.....	79.99	213,177	17,404,084	.....	81.64
1892-95...	2,980,939	173,375,692	.....	58.16	225,313	13,919,867	.....	61.78
1865-95...	19,161,694	1,277,336,588	66.67	62.32	1,489,546	107,459,990	72.14	68.13
1865-67...	1,128,210	\$84,344,544	74.76	48.59	64,823	5,963,444	92.00	59.80
1868-74...	4,023,893	279,449,694	69.45	58.75	251,668	18,533,859	73.64	62.30
1875-81...	4,762,576	264,904,504	55.62	52.95	415,264	25,804,807	62.14	59.16
1882-88...	4,302,816	318,932,054	.....	74.12	373,683	30,419,385	.....	81.40
1889-95...	4,944,199	329,705,792	.....	66.69	384,108	26,738,495	.....	69.61
1865.....	358,692	27,899,426	77.79	36.02	19,535	1,925,660	98.62	45.66
1873.....	669,600	45,385,488	67.78	59.02	35,600	2,583,848	72.58	64.38
1896.....	694,446	23,732,946	.....	34.18	50,431	1,904,802	.....	37.77

Percentages a 11.37, b 10.51.

Percentages a 10.48, b 0.82.



## STATISTICS OF LABOR.

TABLE XV. (a).—Continued.

## ILLINOIS.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Values.		Number.	Value in Currency.	Average Value.	
			Cur- r'ncy	Gold.			Cur'ncy	Gold.
1865-67...	1,733,375	\$138,093,944	79.67	51.79	155,127	\$15,270,924	98.57	64.07
1868-71...	3,218,874	230,136,773	71.50	57.49	311,010	27,109,948	87.17	70.08
1872-75...	4,208,400	270,387,741	66.87	60.05	402,500	30,980,835	76.97	69.12
1876-79...	4,385,800	240,871,347	54.92	52.28	500,400	31,729,331	63.41	60.37
1880-83...	4,175,986	254,258,713	.....	60.89	503,737	35,248,298	.....	69.97
1884-87...	4,174,475	317,976,284	.....	76.17	499,186	42,018,574	.....	84.17
1888-91...	4,409,021	330,695,633	.....	75.00	432,353	34,722,969	.....	80.31
1892-95...	5,319,636	282,648,906	.....	53.13	421,017	24,384,957	.....	57.92
1865-95...	31,625,567	2,065,069,341	65.30	61.11	3,225,330	241,465,836	74.87	70.11
1865-67...	1,733,375	\$138,093,944	79.67	51.79	155,127	15,270,924	98.57	64.07
1868-74...	6,356,974	433,502,328	68.19	57.69	603,510	50,080,583	82.98	70.20
1875-81...	7,601,320	426,068,744	56.05	53.36	868,827	56,293,441	64.79	61.68
1882-88...	7,275,080	536,709,473	.....	73.77	860,157	70,397,477	.....	81.84
1889-95...	8,658,818	530,694,852	.....	61.29	737,709	49,423,411	.....	66.99
1865.....	550,513	45,059,032	81.84	37.89	49,257	5,029,196	102.10	47.27
1873.....	1,049,400	69,585,714	66.31	58.82	98,800	7,778,524	78.73	69.83
1896.....	1,179,072	34,502,959	.....	29.26	97,453	3,531,725	.....	36.24

Percentages a 18.77, b 12.80.

Percentages a 22.69, b 1.31.

## MICHIGAN.

1865-67...	528,314	\$45,947,233	86.97	56.53	2,128	\$219,980	103.37	67.19
1868-71...	958,006	79,591,059	83.08	66.80	10,138	952,014	93.91	75.50
1872-75...	1,144,800	90,415,773	78.91	70.86	15,600	1,357,751	87.04	78.16
1876-79...	1,251,400	95,576,324	76.38	72.71	16,100	1,463,681	90.91	86.55
1880-83...	1,492,864	111,398,523	.....	74.62	19,449	1,719,873	.....	88.43
1884-87...	1,711,269	145,081,240	.....	84.78	22,585	2,297,669	.....	101.73
1888-91...	1,872,455	163,733,955	.....	87.44	24,320	2,419,531	.....	99.49
1892-95...	2,037,597	137,546,919	.....	67.50	13,614	1,093,994	.....	80.36
1865-95...	10,996,705	869,291,026	79.05	74.91	123,934	11,524,493	92.18	89.18
1865-67...	528,314	\$45,947,233	86.97	56.53	2,128	219,980	103.37	67.19
1868-74...	1,811,706	146,631,502	80.94	68.48	22,038	1,987,717	90.19	76.30
1875-81...	2,247,005	173,518,230	77.22	73.51	28,776	2,599,187	90.32	85.98
1882-88...	2,958,541	244,039,597	.....	82.49	39,093	3,830,656	.....	97.99
1889-95...	3,451,139	259,154,464	.....	75.00	31,899	2,886,953	.....	90.50
1865.....	163,768	13,560,230	82.80	38.33	618	62,229	100.69	46.62
1873.....	282,700	22,729,080	80.40	71.33	4,000	363,320	90.83	80.57
1896.....	454,610	20,340,685	.....	44.74	3,026	142,802	.....	47.19

Percentages a 6.52, b 7.88.

Percentages a 0.87, b 0.09.

TABLE XV. (a).—Continued.

## WISCONSIN.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency	Gold.			Currency	Gold.
1865-67...	534,712	\$50,395,186	94.25	61.26	5,991	656,010	109.50	71.18
1868-71...	1,069,967	94,841,376	88.64	71.27	15,008	1,650,646	109.98	88.42
1872-75...	1,348,100	102,203,682	75.81	68.08	19,900	1,848,262	92.89	83.42
1876-79...	1,458,200	93,959,497	64.44	61.35	30,800	2,533,650	82.26	78.31
1880-83...	1,532,564	100,957,805	...	65.88	32,519	2,611,016	...	80.29
1884-87...	1,575,519	125,178,321	...	79.45	31,534	2,949,553	...	93.54
1888-91...	1,709,017	132,268,139	...	77.39	29,206	2,587,595	...	88.60
1892-95...	1,886,097	117,190,272	...	62.14	20,681	1,436,827	...	69.48
1865-95...	11,114,176	817,003,278	73.51	68.91	185,639	16,273,559	87.66	81.94
1865-67...	534,712	\$50,395,186	94.25	61.26	5,991	656,010	109.50	71.18
1868-71...	2,069,367	170,174,236	82.24	69.58	29,808	3,037,664	101.91	86.22
1875-81...	2,598,942	169,898,732	65.37	62.23	53,789	4,339,723	80.68	76.81
1882-88...	2,728,728	209,509,220	...	76.78	54,094	4,932,164	...	91.18
1889-95...	3,182,427	217,025,904	...	68.20	41,937	5,307,998	...	78.84
1865.....	154,067	12,128,987	78.72	36.45	1,727	182,180	105.48	48.84
1873.....	335,300	26,039,398	77.66	68.88	5,000	504,300	100.86	89.46
1896.....	442,853	18,683,229	...	42.19	4,925	216,880	...	44.04

Percentages a 6.59, b 10.51.

Percentages a 1.31, b 0.17.

## MISSOURI.

1865-67...	740,475	\$53,714,675	72.54	47.15	162,750	\$15,267,074	93.81	60.98
1868-71...	1,654,574	101,725,328	61.48	49.43	309,480	25,711,130	83.08	66.80
1872-75...	2,152,200	105,243,844	48.90	43.91	390,900	26,122,117	66.83	60.01
1876-79...	2,412,500	101,958,406	42.26	40.23	633,000	31,159,252	49.22	46.86
1880-83...	2,648,395	130,816,827	...	49.39	764,030	44,987,558	...	58.88
1884-87...	2,913,970	172,560,836	...	59.22	823,391	57,770,263	...	70.16
1888-91...	3,175,183	187,944,344	...	59.19	920,479	62,069,631	...	67.43
1892-95...	3,945,793	170,633,032	...	43.24	1,004,149	50,124,352	...	49.92
1865-95...	19,643,000	1,024,597,292	52.16	49.39	5,008,179	313,211,377	62.54	59.64
1865-67...	740,475	\$53,714,675	72.54	47.15	162,750	15,267,074	93.81	60.98
1868-71...	3,236,674	182,397,862	56.35	47.67	575,382	44,549,497	77.43	65.51
1875-81...	4,268,598	182,833,140	42.83	40.77	1,134,124	58,114,517	51.24	48.78
1882-88...	5,058,471	292,115,235	...	57.75	1,436,858	98,105,840	...	68.28
1889-95...	6,338,872	313,536,380	...	49.46	1,699,065	97,174,449	...	57.19
1865.....	217,943	16,960,151	76.90	35.60	49,645	5,006,953	102.66	47.53
1873.....	527,200	27,145,528	51.49	45.67	89,200	6,329,632	70.96	62.94
1896.....	918,415	23,039,549	...	25.09	231,684	6,914,427	...	29.84

Percentages a 11.65, b 9.21.

Percentages a 35.23, b 2.35.

## STATISTICS OF LABOR.

TABLE XV. (a).—Continued.

## IOWA.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency	Gold			Currency	Gold.
1865-67...	1,040,094	\$87,275,183	83.91	54.54	41,682	\$4,358,564	104.57	67.97
1868-71...	1,968,118	157,763,502	80.16	64.45	102,867	9,317,846	90.58	72.83
1872-75...	2,544,400	165,783,260	65.16	58.51	143,400	10,621,116	74.07	66.51
1876-79...	2,917,500	167,003,196	57.24	54.49	159,500	11,700,436	73.36	69.84
1880-83...	3,260,925	206,160,513	63.22	54.49	182,730	14,371,541	78.65	78.65
1884-87...	3,728,334	277,020,536	74.30	63.22	193,682	17,177,943	88.69	88.69
1888-91...	4,246,795	309,360,197	72.85	74.30	177,722	14,603,347	82.17	82.17
1892-95...	5,334,443	269,701,490	50.56	72.85	152,887	9,056,464	59.24	59.24
1865-95...	25,040,609	1,640,067,877	65.50	62.05	1,154,470	91,207,257	79.00	74.68
1865-67...	1,040,094	87,275,183	83.91	54.54	41,682	4,358,564	104.57	67.97
1868-74...	3,865,518	281,854,082	72.92	61.69	210,267	17,243,642	82.01	69.38
1875-81...	5,152,436	303,182,738	58.84	56.02	285,794	21,173,340	74.00	70.53
1882-88...	6,404,345	462,726,269	72.25	61.69	331,767	28,708,440	86.53	86.53
1889-95...	8,578,216	505,029,605	58.87	72.25	284,960	19,723,271	69.21	69.21
1865.....	307,923	26,108,409	84.78	39.23	12,206	1,304,163	106.84	49.47
1873.....	634,400	40,506,440	63.85	56.63	36,400	2,654,652	72.93	64.69
1896.....	1,182,056	34,082,583	28.79	56.63	34,044	1,230,083	.....	36.13

Percentages a 14.86, b 9.76.

Percentages a 8.12, b 0.45.

## MINNESOTA.

1865-67...	121,052	\$12,213,106	100.89	65.58	2,403	\$270,255	112.47	73.11
1868-71...	350,955	30,506,749	86.92	69.88	7,245	766,046	105.73	85.01
1872-75...	592,100	44,422,292	75.02	67.37	12,160	1,036,333	85.22	76.53
1876-79...	944,700	63,930,889	67.67	64.42	22,300	1,868,055	83.77	79.75
1880-83...	1,119,182	77,901,249	69.61	64.42	33,963	3,063,101	.....	90.19
1884-87...	1,314,305	107,092,119	81.48	69.61	40,903	4,046,064	.....	98.92
1888-91...	1,555,981	124,425,868	79.94	81.48	44,981	4,090,780	.....	90.94
1892-95...	1,938,738	123,916,594	63.92	79.94	38,566	2,871,601	.....	74.46
1865-95...	7,937,013	584,408,866	73.63	71.38	202,521	18,012,235	88.94	86.77
1865-67...	121,052	12,213,106	100.89	65.58	2,403	270,255	112.47	73.11
1868-74...	777,255	62,858,801	80.87	68.42	16,205	1,536,427	94.81	80.21
1875-81...	1,670,480	113,686,246	68.06	64.79	40,328	3,498,383	86.75	82.59
1882-88...	2,252,996	178,753,550	.....	79.34	71,007	6,779,204	.....	95.47
1889-95...	3,115,230	216,897,163	69.62	79.34	72,578	5,927,966	.....	81.68
1865.....	31,782	2,713,959	85.39	39.54	659	72,013	109.27	50.59
1873.....	142,300	11,216,086	78.82	69.31	3,000	266,190	88.73	78.70
1896.....	488,647	18,783,990	38.44	69.31	8,991	422,526	.....	46.99

Percentages a 4.71, b 16.60.

Percentages a 1.42, b 0.42.

TABLE XV. (a).—Continued.

## NEBRASKA.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency	Gold.			Currency	Gold.
1865-67...	34,716	\$3,027,643	87.21	56.69	3,740	\$444,867	118.95	77.32
1868-71...	103,186	9,163,652	88.81	71.40	7,743	928,998	119.98	96.46
1872-75...	200,600	14,699,980	70.13	62.98	16,800	1,690,714	100.64	90.37
1876-79...	452,600	30,732,186	67.90	64.64	36,600	3,372,272	92.14	87.72
1880-83...	844,645	57,152,001	.....	67.66	76,492	6,443,170	.....	84.23
1884-87...	1,318,942	100,306,978	.....	76.05	121,597	11,350,002	.....	93.42
1888-91...	1,946,942	137,513,495	.....	70.63	177,207	15,424,280	.....	87.04
1892-95...	2,687,522	122,897,507	.....	45.73	185,182	11,223,891	.....	60.61
1865-95...	7,598,153	475,493,442	62.58	61.81	625,361	50,887,284	81.37	80.30
1865-67...	34,716	3,027,643	87.21	56.69	3,740	444,867	118.95	77.32
1868-74...	250,986	20,021,526	79.78	67.49	20,243	2,200,075	108.68	91.94
1875-81...	878,927	58,602,662	66.68	63.48	72,668	6,615,304	91.03	86.66
1882-88...	2,212,040	164,742,577	.....	74.48	207,486	18,700,230	.....	90.13
1889-95...	4,221,484	229,099,034	.....	54.27	321,224	22,926,808	.....	71.37
1865.....	9,687	831,083	85.79	39.72	1,130	137,752	121.90	56.44
1873.....	47,700	3,488,778	73.14	64.88	4,100	425,949	103.89	92.15
1896.....	632,653	16,259,065	.....	25.70	43,709	1,556,735	.....	35.62

Percentages a 4.51, b 10.36.

Percentages a 4.40, b 0.85.

## KANSAS.

1865-67...	99,262	\$7,302,861	73.57	47.82	7,617	\$713,868	93.72	60.92
1868-71...	374,432	26,947,798	71.97	57.86	24,902	2,207,154	88.63	71.26
1872-75...	821,200	42,652,793	51.94	46.64	72,400	4,881,011	67.42	60.54
1876-79...	972,800	48,925,996	50.29	47.88	124,400	8,005,947	64.36	61.27
1880-83...	1,576,177	84,114,113	.....	53.37	255,295	17,642,068	.....	69.10
1884-87...	2,199,113	158,387,422	.....	72.02	314,108	28,268,722	.....	90.00
1888-91...	2,769,608	175,684,075	.....	63.43	356,900	27,825,329	.....	77.96
1892-95...	3,798,834	174,459,788	.....	45.92	376,203	21,560,384	.....	57.31
1865-95...	12,611,426	718,474,846	56.97	55.82	1,531,825	111,104,483	72.53	71.51
1865-67...	99,262	7,302,861	73.57	47.82	7,617	713,868	93.72	60.92
1868-74...	974,932	59,843,444	61.38	51.93	77,702	5,915,301	76.13	64.41
1875-81...	1,819,873	89,251,734	49.04	46.69	259,710	16,507,843	63.56	60.51
1882-88...	3,783,810	254,687,919	.....	67.31	539,797	45,755,712	.....	84.76
1889-95...	5,933,549	307,388,888	.....	51.80	646,999	42,211,759	.....	65.24
1865.....	27,830	2,175,373	78.16	36.19	2,264	247,319	109.23	50.57
1873.....	198,900	10,561,590	53.10	47.10	17,400	1,184,418	68.07	60.38
1896.....	857,789	20,609,057	.....	24.03	87,520	2,845,995	.....	32.52

Percentages a 7.48 b 11.55.

Percentages a 10.77, b 1.40.



TABLE XV. (b).

An exhibit by states for certain years and periods of years, from 1865 to 1896, inclusive, of the total number of milch cows and oxen contained in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with their total farm value in dollars currency and their average farm value in currency and gold.

## OHIO.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur- rency	Gold.			Cur- rency.	Gold.
1865-67...	1,957,851	\$83,593,023	42.70	27.76	2,179,056	\$62,713,640	28.78	18.71
1868-71...	2,946,156	129,614,116	43.99	35.37	3,013,560	100,412,826	33.32	26.79
1872-75...	3,114,400	100,813,127	32.37	29.07	3,525,600	96,972,283	27.51	24.70
1876-79...	2,930,700	91,576,650	31.25	29.75	3,207,100	75,285,821	23.47	22.34
1880-83...	2,918,955	88,199,962	...	30.22	3,634,747	96,166,577	...	26.46
1884-87...	3,117,004	101,087,087	...	32.43	4,050,924	114,110,765	...	28.17
1888-91...	3,141,681	83,829,033	...	26.68	3,829,545	90,895,634	...	23.74
1892-95...	3,101,963	79,485,610	...	25.62	3,291,517	71,205,105	...	21.63
1865-95...	23,228,710	758,198,608	32.65	29.65	26,732,049	707,762,651	26.48	24.41
1865-67...	1,957,851	83,593,023	42.70	27.76	2,179,056	62,713,640	28.78	18.71
1868-74...	5,282,056	206,745,273	39.14	33.11	5,647,460	173,674,806	30.75	26.01
1875-81...	5,102,200	152,914,210	29.97	28.53	5,666,960	135,154,726	23.85	22.71
1882-88...	5,426,440	174,506,104	...	32.16	7,085,051	198,885,430	...	28.07
1889-95...	5,460,163	140,436,998	...	25.72	6,153,522	137,334,049	...	22.32
1865.....	609,799	21,422,238	35.13	16.27	748,979	18,099,793	24.16	11.19
1873.....	786,400	25,306,352	32.18	28.54	901,000	24,966,710	27.71	24.58
1896.....	759,597	18,420,227	...	24.25	686,285	14,693,645	...	21.41

Percentages a 14.31, b 7.99.

Percentages a 9.90, b 9.19.

## INDIANA.

1865-67...	1,290,906	\$52,289,310	40.51	26.33	1,539,161	\$36,906,217	23.98	15.59
1868-71...	1,712,494	64,957,710	37.93	30.50	2,275,327	59,922,603	26.34	21.18
1872-75...	1,794,000	53,924,948	30.06	26.99	3,083,400	66,891,096	21.69	19.48
1876-79...	1,752,500	45,734,660	26.10	24.85	3,073,600	56,046,155	18.23	17.35
1880-83...	1,863,738	50,500,566	...	27.10	3,215,132	70,230,283	...	21.84
1884-87...	2,126,907	66,656,694	...	31.34	3,517,294	91,824,829	...	26.11
1888-91...	2,341,363	56,102,944	...	23.96	3,818,045	76,718,160	...	20.09
1892-95...	2,628,060	63,440,348	...	27.56	3,920,609	77,752,501	...	19.83
1865-95...	15,509,968	453,607,180	29.25	26.75	24,442,568	536,291,934	21.94	20.54
1865-67...	1,290,906	52,289,310	40.51	26.33	1,539,161	36,906,217	23.98	15.59
1868-74...	3,058,094	107,071,802	35.01	29.62	4,570,627	111,091,104	24.31	20.57
1875-81...	3,074,848	79,209,383	25.76	24.52	5,382,466	100,421,419	18.66	17.76
1882-88...	3,673,658	110,949,061	...	30.20	6,106,004	153,469,384	...	25.13
1889-95...	4,412,462	104,087,624	...	23.59	6,844,310	134,403,810	...	19.64
1865.....	445,140	14,596,339	32.07	14.84	546,558	12,187,105	22.29	10.32
1873.....	453,000	13,920,690	30.73	27.26	765,000	18,344,700	23.98	21.27
1896.....	637,404	15,743,879	...	24.70	798,414	16,447,970	...	20.60

Percentages a 9.56, b 8.51.

Percentages a 9.06, b 13.41.

TABLE XV. (b).—Continued.

## ILLINOIS.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur-rency	Gold.			Cur'ney	Gold.
1865-67...	1,600,324	\$54,210,325	33.69	21.90	2,824,448	\$62,844,372	22.25	14.46
1868-71...	2,359,892	88,172,420	37.36	30.04	3,985,607	102,496,450	25.72	20.68
1872-75...	2,858,100	87,689,957	30.68	27.55	5,070,600	117,277,502	23.13	20.77
1876-79...	2,833,700	76,803,283	27.10	25.80	5,071,200	106,127,178	20.93	19.93
1880-83...	3,162,598	93,044,171	.....	29.42	5,328,800	130,006,665	.....	24.40
1884-87...	3,685,658	120,370,175	.....	32.66	5,900,200	159,240,988	.....	26.90
1888-91...	4,078,846	97,738,107	.....	23.96	6,495,432	129,133,166	.....	19.88
1892-95...	4,266,524	102,455,276	.....	24.01	6,361,432	122,349,315	.....	19.23
1865-95...	24,854,642	720,483,714	28.99	27.02	41,037,719	929,475,636	22.65	21.21
1865-67...	1,600,324	54,210,325	33.69	21.90	2,824,448	62,844,372	22.25	14.46
1868-71...	4,492,892	155,131,768	34.53	29.21	7,756,207	191,134,952	24.64	20.85
1875-84...	4,963,508	135,707,319	27.34	26.03	8,829,447	189,631,286	21.48	20.45
1882-88...	6,381,024	200,084,033	.....	31.36	10,256,507	267,412,337	.....	26.07
1889-95...	7,407,894	175,350,269	.....	23.67	11,371,110	218,452,689	.....	19.21
1865.....	551,327	16,793,420	30.46	14.10	978,700	21,202,874	21.66	9.90
1873.....	710,900	21,646,903	30.45	27.01	1,260,900	30,122,901	23.89	21.19
1896.....	1,018,443	27,966,445	.....	27.46	1,430,976	29,214,530	.....	20.42

Percentages a 15.31, b 10.06.

Percentages a 15.20, b 16.61.

## MICHIGAN.

1865-67...	686,767	\$28,326,010	41.25	26.81	938,889	\$28,465,919	30.32	19.71
1868-71...	1,207,185	51,559,989	42.71	34.34	1,518,313	48,674,941	32.06	25.78
1872-75...	1,406,000	46,902,364	33.36	29.96	1,839,900	50,290,179	27.33	24.54
1876-79...	1,521,900	46,333,184	30.44	28.98	1,613,400	38,377,837	23.79	22.65
1880-83...	1,622,301	48,764,843	.....	30.06	1,835,244	47,571,628	.....	25.92
1884-87...	1,673,613	55,168,293	.....	32.96	2,021,907	54,320,163	.....	26.87
1888-91...	1,793,380	48,886,811	.....	27.26	2,084,655	47,280,762	.....	22.68
1892-95...	1,870,341	49,785,846	.....	26.62	1,902,694	38,106,214	.....	20.02
1865-95...	11,781,487	375,727,340	31.88	29.60	13,755,002	353,096,643	25.67	23.74
1865-67...	686,767	28,326,010	41.25	26.81	938,889	28,465,919	30.32	19.71
1868-74...	2,255,585	86,733,073	33.45	32.53	2,908,913	86,721,695	29.81	25.22
1875-81...	2,713,300	81,146,217	29.91	28.47	2,888,360	69,653,401	24.11	22.95
1882-88...	2,899,417	93,531,170	.....	32.26	3,542,297	95,725,000	.....	27.02
1889-95...	3,226,418	85,990,870	.....	26.65	3,475,943	72,530,028	.....	20.87
1865.....	220,825	7,126,022	32.27	14.94	328,901	8,372,682	25.45	11.78
1873.....	350,600	11,681,992	33.32	29.55	463,500	13,103,145	28.27	25.08
1896.....	468,523	11,788,039	.....	25.16	.....	.....	.....	17.61

Percentages a 7.26, b 8.45.

Percentages a 5.10, b 9.86.

TABLE XV. (b.)—Continued.

## WISCONSIN.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur- rency	Gold.			Cur- rency.	Gold.
1865-67...	870,592	\$29,828,194	34.26	22.27	1,155,396	\$30,127,901	26.08	16.95
1868-71...	1,474,767	53,126,230	36.02	28.96	1,661,492	44,921,174	27.04	21.74
1872-75...	1,738,700	47,687,627	27.43	24.63	1,740,600	40,587,973	23.32	20.94
1876-79...	1,875,000	47,278,593	25.21	24.00	1,962,600	38,811,025	19.78	18.83
1880-83...	1,903,230	49,249,641	...	25.88	2,367,565	52,495,604	...	22.17
1884-87...	2,194,849	64,287,093	...	29.29	2,784,500	68,362,209	...	24.55
1888-91...	2,504,234	59,053,582	...	23.58	2,951,326	53,791,136	...	18.23
1892-95...	3,015,985	67,626,316	...	22.42	3,184,490	53,748,234	...	16.88
1865-95...	15,577,957	418,137,276	26.84	25.05	17,807,969	382,845,256	21.50	20.08
1865-67...	870,592	29,828,194	34.26	22.27	1,155,396	30,127,901	26.08	16.95
1868-71...	2,748,667	88,557,081	32.22	27.26	2,966,192	76,237,554	25.70	21.74
1875-81...	3,238,472	78,629,296	24.28	23.11	3,438,673	68,005,381	19.78	18.83
1882-88...	3,748,229	107,506,937	...	28.68	4,752,644	114,373,213	...	24.07
1889-95...	4,971,997	113,615,768	...	22.85	5,495,064	94,101,207	...	17.13
1865.....	270,749	7,792,156	28.78	13.33	388,760	8,542,753	21.97	10.17
1873.....	425,700	9,424,952	28.00	24.84	446,400	10,406,652	23.63	20.96
1896.....	802,902	17,832,453	...	22.21	673,250	11,693,824	...	17.37

Percentages a 9.60, b 14.73.

Percentages a 6.60, b 16.84.

## MISSOURI.

1865-67...	805,024	\$22,271,148	27.67	17.99	1,415,138	\$28,787,889	20.34	13.22
1868-71...	1,384,167	43,194,510	31.21	25.09	2,560,561	56,519,872	22.07	17.74
1872-75...	1,641,400	37,272,072	22.71	20.39	3,146,900	53,797,859	17.10	15.36
1876-79...	1,920,600	39,019,232	20.32	19.34	4,367,100	72,009,145	16.49	15.70
1880-83...	2,418,193	53,210,142	...	22.00	6,085,168	115,670,240	...	19.01
1884-87...	2,801,278	72,046,253	...	25.72	5,474,084	116,302,010	...	21.25
1888-91...	3,061,468	57,321,151	...	18.72	6,208,258	102,060,988	...	16.44
1892-95...	3,242,951	57,296,388	...	17.67	7,404,970	116,458,298	...	15.73
1865-95...	17,275,081	381,630,896	22.09	20.82	36,662,179	661,606,301	18.05	17.23
1865-67...	805,024	22,271,148	27.67	17.99	1,415,138	28,787,889	20.34	13.22
1868-71...	2,604,167	72,249,282	27.75	23.48	4,917,361	98,679,558	20.07	16.98
1875-81...	3,410,795	68,332,071	20.03	19.07	8,503,249	143,562,858	16.88	16.07
1882-88...	4,887,935	119,090,351	...	24.36	9,642,656	198,134,077	...	20.55
1889-95...	5,567,160	99,688,044	...	17.91	12,183,775	192,441,919	...	15.79
1865.....	272,718	5,620,717	20.61	9.54	471,006	9,051,787	19.21	8.89
1873.....	405,200	15,130,368	23.26	20.63	782,900	14,327,070	18.30	16.23
1896.....	723,309	...	...	24.00	1,686,990	32,565,492	...	19.30

Percentages a 10.64, b 8.10.

Percentages a 13.58, b 17.19.

TABLE XV. (b).—Continued.

## IOWA.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur-	Gold.			Curney.	Gold.
1865-67...	952,983	\$28,118,095	29.51	19.18	1,731,258	\$40,379,896	23.32	15.16
1868-71...	1,670,970	57,143,598	34.20	27.50	2,889,826	72,169,983	24.97	20.08
1872-75...	2,210,800	60,496,600	27.36	24.57	3,414,500	75,453,402	22.10	19.85
1876-79...	2,595,300	62,211,356	23.97	22.82	4,283,400	79,741,808	18.62	17.73
1880-83...	3,426,489	94,681,269	.....	27.63	6,474,800	145,474,574	.....	22.47
1884-87...	4,708,956	136,942,463	.....	29.08	8,161,630	201,393,187	.....	24.68
1888-91...	5,159,027	108,445,485	.....	21.02	9,447,914	178,993,066	.....	18.95
1892-95...	5,100,659	117,172,398	.....	22.97	10,682,964	204,476,630	.....	19.14
1865-95...	25,825,184	665,211,264	25.76	24.59	47,086,292	998,082,546	21.20	20.35
1865-67...	952,983	28,118,095	29.51	19.18	1,731,258	40,379,896	23.32	15.16
1868-74...	3,289,570	101,946,898	30.99	26.22	5,434,526	128,974,873	23.73	20.08
1875-81...	4,694,460	116,329,238	24.78	23.59	7,935,112	155,731,282	19.63	18.69
1882-88...	7,883,917	222,450,716	.....	28.22	13,949,771	332,160,594	.....	23.81
1889-95...	9,004,254	196,366,317	.....	21.81	18,035,625	340,835,901	.....	18.90
1865.....	294,131	7,847,415	26.68	12.35	561,338	12,840,703	22.87	10.59
1873.....	537,300	15,130,368	28.16	24.98	820,000	19,196,200	23.41	20.76
1896.....	1,202,560	31,001,997	.....	25.78	2,336,973	50,159,389	.....	21.46

Percentages a 15.91, b 10.07.

Percentages a 17.45, b 18.35.

## MINNESOTA.

1865-67...	265,919	\$8,719,397	32.79	21.31	425,611	\$11,138,593	26.17	17.01
1868-71...	572,511	20,111,376	35.13	28.24	817,434	21,058,641	25.76	20.71
1872-75...	770,600	21,279,965	27.61	24.79	1,114,600	23,549,980	21.13	18.97
1876-79...	1,012,000	21,920,279	21.66	20.62	1,274,900	22,996,734	18.04	17.17
1880-83...	1,236,361	31,063,493	.....	25.12	1,457,068	31,247,402	.....	21.45
1884-87...	1,512,001	43,113,165	.....	28.51	1,791,293	42,349,406	.....	23.64
1888-91...	1,947,682	42,300,780	.....	21.72	2,238,778	38,849,302	.....	17.35
1892-95...	2,314,671	45,328,277	.....	19.58	2,823,046	41,634,723	.....	14.75
1865-95...	9,631,745	233,836,732	24.28	23.22	11,942,730	232,824,731	19.50	18.53
1865-67...	265,919	8,719,397	32.79	21.31	425,611	11,138,593	26.17	17.01
1868-74...	1,120,711	35,786,861	31.93	27.01	1,621,134	38,642,400	23.84	20.17
1875-81...	1,854,560	40,880,817	22.04	20.98	2,237,048	41,425,470	18.52	17.63
1882-88...	2,562,168	71,127,293	.....	27.76	3,086,999	71,108,319	.....	23.03
1889-95...	3,828,387	77,322,364	.....	20.20	4,571,938	70,509,949	.....	15.42
1865.....	78,768	2,075,537	28.35	12.20	127,175	2,742,569	21.66	10.03
1873.....	182,400	5,486,592	30.08	26.68	269,300	5,773,792	21.44	19.02
1896.....	600,515	12,875,042	.....	21.44	694,321	10,434,540	.....	15.08

Percentages a 5.93, b 20.25.

Percentages a 4.42, b 25.11.



TABLE XV. (b).—Continued.

## NEBRASKA.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value	
			Currency	Gold.			Currency.	Gold.
1865-67...	61,800	\$1,978,223	32.01	20.81	185,474	\$4,870,682	26.26	17.07
1868-71...	156,106	6,195,845	39.69	31.91	350,867	10,186,286	29.03	23.34
1872-75...	191,200	5,871,520	30.71	27.58	305,400	7,313,689	23.95	21.51
1876-79...	366,200	9,585,893	26.18	24.92	856,407	17,425,768	20.35	19.37
1880-83...	711,600	20,242,650	....	28.45	2,815,981	66,396,259	....	23.58
1884-87...	1,184,693	35,429,686	....	29.91	5,457,507	138,910,365	....	25.45
1888-91...	1,601,607	34,423,521	....	21.49	4,919,192	90,031,366	....	18.30
1892-95...	2,153,222	39,633,821	....	18.41	5,987,920	95,383,635	....	15.93
1865-95...	6,426,428	153,361,150	23.87	23.40	20,878,748	430,518,047	20.62	20.37
1865-67...	61,800	1,978,223	32.01	20.81	185,474	4,870,682	26.26	17.07
1868-74...	293,506	10,543,363	35.93	30.40	577,267	15,694,822	27.19	23.00
1875-81...	720,090	19,031,271	26.43	25.16	1,868,447	39,249,334	21.01	20.00
1882-88...	1,953,405	56,857,611	....	29.11	8,420,094	208,051,898	....	24.71
1889-95...	3,397,627	64,948,691	....	19.12	9,827,466	162,651,311	....	16.55
1865.....	17,439	534,156	30.63	14.18	53,606	1,418,918	26.46	12.25
1873.....	45,800	1,417,968	30.96	27.46	73,200	1,840,248	25.14	22.30
1896.....	534,197	11,709,598	....	21.92	1,062,469	18,980,269	....	17.86

Percentages a 3.96, b 8.77.

Percentages a 7.74, b 28.47.

## KANSAS.

1865-67...	214,069	\$6,248,542	29.19	18.97	388,196	\$8,937,331	23.03	14.97
1868-71...	501,303	17,515,993	34.94	28.09	870,729	23,419,893	26.90	21.63
1872-75...	871,900	22,787,342	26.14	23.47	1,838,300	35,211,600	19.15	17.20
1876-79...	1,096,000	25,258,574	23.05	21.94	2,125,000	38,526,545	18.13	17.26
1880-83...	1,662,915	45,220,468	....	27.19	3,689,518	82,900,068	....	22.44
1884-87...	2,249,101	66,748,003	....	29.68	5,896,478	144,343,067	....	24.48
1888-91...	2,802,102	55,546,956	....	19.82	6,997,341	125,365,458	....	17.92
1892-95...	2,811,640	52,159,803	....	18.55	7,755,416	128,815,216	....	16.61
1865-95...	12,209,080	291,485,681	23.87	23.12	29,560,978	587,419,158	19.87	19.43
1865-67...	214,069	6,248,542	29.19	18.97	388,196	8,937,331	23.03	14.97
1868-74...	1,137,503	35,436,130	31.15	26.35	2,232,329	50,689,671	22.71	19.21
1875-81...	2,059,098	48,403,358	23.51	22.38	3,916,531	73,432,571	18.75	17.85
1882-88...	3,824,639	108,035,107	....	28.25	9,855,080	232,450,877	....	23.59
1889-95...	4,973,661	93,362,544	....	18.77	13,168,842	221,908,708	....	16.85
1865.....	59,998	1,599,546	26.66	12.34	118,461	2,475,005	20.89	9.67
1873.....	214,000	6,193,160	28.94	25.67	457,000	9,350,220	20.46	18.15
1896.....	622,892	13,778,371	....	22.12	1,766,245	33,903,604	....	19.20

Percentages a 7.52, b 11.18.

Percentages a 10.95, b 27.06.

TABLE XV. (c).

An exhibit by states for certain years and periods of years, from 1865 to 1896, inclusive, of the total number of sheep and swine contained on the farms in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with their total farm values in dollars currency and their average farm value in currency and gold.

## OHIO.

YEARS.	SHEEP.					SWINE.				
	Number.	Value in Currency.	Average Value.			Number.	Value in Currency.	Average Value		
			Cur- rency	Gold.				Cur- rency.	Gold.	
1865-67...	19,522,569	84,077,642	4.31	2.80		5,823,834	\$48,238,303	8.28		5.38
1868-71...	23,921,126	49,995,272	2.09	1.68		7,372,991	56,339,418	7.64		6.14
1872-75...	18,418,700	54,003,779	2.93	2.63		8,142,900	44,985,030	5.52		4.96
1876-79...	16,269,600	42,488,292	2.61	2.43		7,874,300	46,975,815	5.97		5.68
1880-83...	18,326,068	55,674,736	.....	3.04		9,549,904	63,898,337	.....		6.69
1884-87...	19,216,018	48,352,024	.....	2.52		9,672,620	53,131,312	.....		5.49
1888-91...	16,177,664	46,848,604	.....	2.89		10,769,399	59,283,059	.....		5.50
1892-95...	16,189,935	43,271,493	.....	2.67		10,211,532	61,804,685	.....		6.05
1865-95...	148,041,680	424,711,842	2.87	2.55		69,417,480	434,655,959	6.26		5.76
1865-67...	19,522,569	84,077,642	4.31	2.80		5,823,834	48,238,303	8.28		5.38
1868-71...	23,921,126	91,231,623	2.42	2.05		13,780,991	88,971,960	6.46		5.47
1875-81...	29,186,216	79,873,589	2.74	2.61		13,617,792	80,628,652	5.92		5.64
1882-88...	33,324,692	90,123,068	.....	2.70		17,882,316	110,990,321	.....		6.21
1889-95...	28,260,977	79,405,920	.....	2.81		18,312,547	105,826,723	.....		5.78
1865.....	5,795,340	31,816,417	5.49	2.54		1,779,176	16,484,065	9.00		4.29
1873.....	4,639,000	14,009,780	3.02	2.68		2,217,000	10,131,690	4.57		4.05
1896.....	2,754,613	5,247,538	.....	1.91		2,456,626	10,822,911	.....		4.41

Percentages a 32.47, b 50.89.

Percentages a 11.67, b 23.86.

## INDIANA.

1865-67...	8,273,150	\$28,345,799	3.43	2.23		6,843,065	\$41,893,535	6.12		3.98
1868-71...	9,765,456	17,260,492	1.77	1.42		9,149,532	55,385,667	6.05		4.86
1872-75...	6,888,500	18,074,582	2.62	2.35		10,370,500	47,956,466	4.62		4.15
1876-79...	4,557,200	10,458,158	2.29	2.18		9,259,100	51,459,032	5.56		5.29
1880-83...	4,282,717	11,256,502	.....	2.63		9,964,155	62,022,116	.....		6.22
1884-87...	4,389,874	10,744,217	.....	2.45		10,712,941	58,356,428	.....		5.45
1888-91...	4,851,268	14,556,075	.....	3.00		10,148,244	58,052,284	.....		5.72
1892-95...	4,050,647	12,351,300	.....	3.05		8,198,719	51,034,620	.....		6.22
1865-95...	47,058,812	123,047,125	2.61	2.28		74,646,256	426,160,148	5.71		5.27
1865-67...	8,273,150	28,345,799	3.43	2.23		6,843,065	41,893,535	6.12		3.98
1868-74...	15,353,956	32,202,074	2.09	1.77		16,850,032	88,443,533	5.25		4.44
1875-81...	7,905,770	18,725,098	2.37	2.26		16,301,100	88,064,612	5.40		5.14
1882-88...	7,627,089	19,420,390	.....	2.55		18,676,181	112,753,913	.....		6.04
1889-95...	7,898,847	24,353,764	.....	3.08		15,975,878	95,004,555	.....		5.95
1865.....	2,455,913	11,579,630	4.71	2.18		2,025,474	14,355,544	7.08		3.28
1873.....	1,913,900	5,416,337	2.83	2.51		2,713,900	9,797,179	3.61		3.20
1896.....	727,509	1,669,779	.....	2.30		1,654,772	7,802,580	.....		4.72

Percentages a 10.32, b 25.81.

Percentages a 12.56, b 40.94.

TABLE XV. (c).—*Continued.*

## ILLINOIS.

YEARS.	SHEEP.				SWINE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur- rency	Gold			Cur'ency	Gold.
1865-67...	7,272,265	\$28,733,516	3.95	2.57	6,283,079	\$48,748,462	7.76	5.04
1868-71...	8,536,125	16,566,349	1.94	1.56	9,556,929	67,798,003	7.09	5.70
1872-75...	5,549,500	15,248,726	2.74	2.47	13,749,000	69,762,433	5.07	4.55
1876-79...	4,917,000	11,735,520	2.39	2.28	10,726,100	72,907,223	6.80	6.47
1880-83...	4,442,640	12,464,584	.....	2.81	14,511,577	95,719,317	.....	6.60
1884-87...	4,150,863	10,108,772	.....	2.44	15,719,638	87,560,862	.....	5.57
1888-91...	3,047,025	8,639,110	.....	2.84	18,755,453	114,526,314	.....	6.11
1892-95...	3,925,767	11,561,687	.....	2.95	15,185,986	100,470,106	.....	6.62
1865-95...	41,841,185	115,058,264	2.75	2.38	104,487,762	657,492,720	6.29	5.90
1865-67...	7,272,265	28,733,516	3.95	2.57	6,283,079	48,748,462	7.76	5.04
1868-74...	12,705,625	28,227,075	2.22	1.88	20,271,329	118,412,110	5.84	4.91
1875-81...	8,563,032	21,561,773	2.52	2.40	20,165,300	128,785,855	6.39	6.08
1882-88...	7,141,648	18,361,987	.....	2.57	26,929,560	166,638,341	.....	6.19
1889-95...	6,158,615	18,173,903	.....	2.96	30,838,494	194,907,952	.....	6.33
1865.....	2,062,112	10,841,554	5.25	2.43	2,034,231	17,662,212	8.68	4.02
1873.....	1,394,300	4,461,760	3.20	2.84	3,708,300	15,937,090	4.30	3.81
1896.....	694,470	1,670,687	.....	2.41	2,392,980	12,301,830	.....	5.14

Percentages a 9.18, b 16.93.

Percentages a 17.57, b 42.29.

## MICHIGAN.

1865-67...	10,521,908	43,250,218	4.12	2.68	1,104,913	\$8,270,938	7.49	4.87
1868-71...	13,914,362	29,724,990	2.14	1.72	1,799,350	12,736,355	7.08	5.69
1872-75...	13,485,700	37,995,285	2.82	2.53	2,046,900	10,517,955	5.14	4.62
1876-79...	9,120,600	23,469,590	2.57	2.45	2,088,600	12,886,069	6.17	5.87
1880-83...	8,544,598	25,860,407	.....	3.03	2,895,288	20,430,392	.....	7.06
1884-87...	9,202,330	23,895,076	.....	2.60	3,354,490	19,507,971	.....	5.82
1888-91...	8,751,228	25,947,134	.....	2.97	3,701,507	21,340,385	.....	5.77
1892-95...	9,226,886	25,239,631	.....	2.74	3,054,407	19,392,396	.....	6.37
1865-95...	82,767,612	235,382,331	2.84	2.53	20,045,455	125,082,491	6.25	5.89
1865-67...	10,521,908	43,250,218	4.12	2.68	1,104,913	8,270,938	7.49	4.87
1868-74...	23,983,562	57,265,785	.....	2.02	3,386,550	20,128,380	5.94	5.03
1875-81...	16,324,156	44,721,645	2.74	2.61	3,593,537	21,615,453	6.02	5.73
1882-88...	16,072,876	44,701,908	.....	2.78	6,110,796	40,124,639	.....	6.57
1889-95...	15,865,110	45,442,775	.....	2.86	5,849,659	34,943,081	.....	5.97
1865.....	3,020,066	15,726,995	5.20	2.41	339,696	2,463,645	7.25	3.36
1873.....	3,418,000	9,878,020	2.89	2.56	543,500	2,456,620	4.52	4.01
1896.....	1,491,079	2,843,189	.....	1.91	720,694	4,203,518	.....	5.83

Percentages a 18.15, b 59.35.

Percentages a 3.37, b 14.37.

TABLE XV. (c).—Continued.

## WISCONSIN.

YEARS.	SHEEP.				SWINE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur-rency	Gold.			Cur-rency	Gold.
1865-67...	3,895,213	\$17,386,066	4.46	2.90	1,084,587	\$8,388,041	7.73	5.02
1868-71...	6,355,862	15,233,596	2.40	1.93	1,794,368	13,155,361	7.33	5.89
1872-75...	4,560,200	12,134,161	2.67	2.40	2,516,900	11,717,441	4.66	4.18
1876-79...	4,950,600	11,822,705	2.39	2.28	2,373,600	13,544,768	5.71	5.44
1880-83...	5,350,213	13,388,941	.....	2.50	3,423,375	25,643,100	.....	7.49
1884-87...	4,910,694	10,526,724	.....	2.14	4,172,665	23,458,580	.....	5.62
1888-91...	3,403,727	8,671,716	.....	2.55	4,310,430	26,079,644	.....	6.05
1892-95...	4,068,015	10,076,172	.....	2.48	3,872,529	26,704,362	.....	6.90
1865-95...	37,503,524	99,260,081	2.65	2.31	23,548,454	148,691,297	6.31	6.00
1865-67...	3,805,213	17,386,066	4.46	2.90	1,084,587	8,388,041	7.73	5.02
1868-74...	9,704,762	24,553,345	2.53	2.14	3,723,468	21,833,876	5.86	4.96
1875-81...	8,807,261	21,152,334	2.40	2.28	4,106,000	22,501,824	5.48	5.22
1882-88...	8,536,208	19,382,709	.....	2.27	7,576,306	49,950,348	.....	6.59
1889-95...	6,560,080	16,785,627	.....	2.56	7,059,093	46,017,208	.....	6.52
1865.....	969,925	5,569,795	5.74	2.66	340,638	2,695,294	7.91	3.66
1873.....	1,153,100	3,263,273	2.83	2.51	658,400	3,074,728	4.67	4.14
1896.....	770,350	1,498,176	.....	1.94	902,501	5,656,011	.....	6.27

Percentages a 8.23, b 35.47.

Percentages a 3.96, b 22.28.

## MISSOURI.

1865-67...	2,646,073	\$7,788,609	2.94	1.91	3,332,448	15,591,327	4.68	3.04
1868-71...	6,218,926	11,185,720	1.80	1.45	8,304,092	36,240,607	4.36	3.51
1872-75...	5,663,900	10,492,300	1.85	1.66	9,872,400	29,707,528	3.01	2.70
1876-79...	5,148,600	9,240,378	1.79	1.70	9,837,500	41,964,910	4.27	4.07
1880-83...	6,022,561	12,137,566	.....	2.02	13,231,131	58,548,445	.....	4.43
1884-87...	5,245,353	9,152,073	.....	1.74	16,342,175	64,737,258	.....	3.96
1888-91...	4,293,984	8,560,134	.....	1.99	18,681,199	73,810,776	.....	3.95
1892-95...	3,878,344	8,750,286	.....	2.26	15,979,309	74,577,258	.....	4.67
1865-95...	39,117,741	77,307,066	1.98	1.81	95,580,254	395,178,109	4.13	3.95
1865-67...	2,646,073	7,788,609	2.94	1.91	3,332,448	15,591,327	4.68	3.04
1868-74...	10,516,626	19,668,578	1.87	1.58	16,093,892	59,429,597	3.69	3.12
1875-81...	9,658,031	17,585,108	1.82	1.73	17,160,500	67,479,824	3.93	3.74
1882-88...	9,212,373	16,849,324	.....	1.83	28,131,705	119,332,573	.....	4.24
1889-95...	7,084,638	15,435,447	.....	2.18	30,861,709	133,344,788	.....	4.32
1865.....	809,565	3,052,060	3.77	1.75	988,857	4,650,098	4.70	2.18
1873.....	1,437,300	2,946,465	2.05	1.82	2,656,500	6,375,600	2.40	2.13
1896.....	774,738	1,475,953	.....	1.91	3,169,411	12,363,872	.....	3.90

Percentages a 8.58, b 18.34.

Percentages a 16.08, b 44.81.



TABLE XV. (c).—*Continued.*

## IOWA.

YEARS.	SHEEP.				SWINE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur- rency	Gold.			Cur'ncy.	Gold.
1865-67...	5,816,911	\$22,713,703	3.90	2.54	4,512,710	\$29,741,572	6.59	4.23
1868-71...	8,749,320	15,933,848	1.82	1.46	9,097,706	64,428,010	7.08	5.69
1872-75...	7,021,200	16,724,694	2.38	2.14	14,535,600	75,159,609	5.17	4.64
1876-79...	4,349,900	10,462,229	2.41	2.29	12,424,400	75,943,074	6.11	5.82
1880-83...	1,897,730	5,261,445	.....	2.77	16,215,816	111,579,557	.....	6.88
1884-87...	1,862,542	4,641,158	.....	2.49	18,912,091	105,033,636	.....	5.55
1888-91...	1,877,019	5,068,933	.....	2.70	22,624,911	142,848,560	.....	6.31
1892-95...	2,759,226	8,077,591	.....	2.93	24,799,612	181,650,429	.....	7.32
1865-95...	34,333,848	88,883,581	2.59	2.20	123,122,846	786,384,447	6.39	6.11
1865-67...	5,816,911	22,713,703	3.90	2.54	4,512,710	29,741,572	6.59	4.28
1868-74...	14,072,620	28,345,936	2.01	1.70	20,235,106	116,547,823	5.76	4.87
1875-81...	6,965,688	17,273,126	2.48	2.36	21,379,400	130,462,142	6.10	5.81
1882-88...	3,250,862	8,389,541	.....	2.58	33,719,918	213,103,545	.....	6.32
1889-95...	4,227,767	12,161,275	.....	2.88	43,275,712	296,529,363	.....	6.85
1865.....	1,466,734	8,136,708	5.54	2.57	1,423,567	10,335,098	7.26	3.36
1873.....	1,768,000	4,278,560	2.42	2.15	3,847,700	17,199,219	4.47	3.96
1896.....	565,137	1,399,279	.....	2.48	4,854,507	27,462,917	.....	5.66

Percentages a 7.53, b 13.38.

Percentages a 20.71, b 47.99.

## MINNESOTA.

1865-67...	285,451	\$1,191,932	4.18	2.72	381,019	\$3,398,598	8.92	5.80
1868-71...	528,480	1,270,401	2.40	1.93	617,827	4,212,310	6.82	5.48
1872-75...	630,600	1,709,434	2.71	2.43	819,500	4,116,617	5.02	4.51
1876-79...	1,006,900	2,296,487	2.28	2.17	805,100	4,402,466	5.47	5.20
1880-83...	1,180,537	2,924,486	.....	2.48	1,216,200	7,985,105	.....	6.57
1884-87...	1,104,495	2,701,397	.....	2.45	1,706,695	8,410,065	.....	4.93
1888-91...	1,279,249	3,115,153	.....	2.44	2,137,699	12,694,972	.....	5.94
1892-95...	1,861,173	4,450,797	.....	2.39	2,287,611	15,722,554	.....	6.87
1865-95...	7,876,885	19,660,087	2.49	2.38	9,971,651	60,942,687	6.11	5.85
1865-67...	285,451	1,191,932	4.18	2.72	381,019	3,398,598	8.92	5.80
1868-74...	982,880	2,560,479	2.61	2.21	1,232,127	7,286,511	5.91	5.00
1875-81...	1,804,250	4,173,762	2.31	2.20	1,413,400	7,644,722	5.41	5.15
1882-88...	1,947,607	4,842,662	.....	2.49	3,069,588	17,450,105	.....	5.68
1889-95...	2,856,697	6,891,252	.....	2.42	3,875,517	25,162,751	.....	6.50
1865.....	64,641	337,750	5.22	2.42	109,016	918,187	8.42	3.90
1873.....	151,400	466,312	3.08	2.73	209,600	1,054,288	5.03	4.46
1896.....	435,381	844,290	.....	1.94	560,957	2,869,295	.....	5.11

Percentages a 1.73, b 16.56.

Percentages a 1.68, b 20.97.

TABLE XV. (c).—Continued.

## NEBRASKA.

YEARS.	SHEEP.				SWINE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur'ncy.	Gold.			Cur'ncy.	Gold.
1865-67...	47,449	\$199,538	4.21	2.74	116,150	\$902,924	7.77	5.05
1868-71...	95,818	251,683	2.63	2.11	321,535	2,429,529	7.56	6.08
1872-75...	151,600	380,196	2.51	2.25	429,700	2,151,253	5.01	4.50
1876-79...	315,900	806,151	2.55	2.43	1,114,700	5,161,500	4.63	4.41
1880-83...	939,763	2,446,262	.....	2.60	4,861,750	31,607,704	.....	6.50
1884-87...	1,596,101	3,326,671	.....	2.08	8,160,535	48,340,011	.....	5.92
1888-91...	1,238,124	2,538,682	.....	2.05	9,218,572	52,132,652	.....	5.66
1892-95...	1,003,706	2,396,768	.....	2.39	8,190,872	54,467,090	.....	6.65
1865-95...	5,388,461	12,345,951	2.29	2.26	32,413,814	197,192,663	6.08	6.05
1865-67...	47,449	199,538	4.21	2.74	116,150	902,924	7.77	5.05
1868-74...	204,818	523,249	2.55	2.16	674,135	4,265,443	6.33	5.36
1875-81...	724,836	1,918,749	2.65	2.52	3,210,550	15,849,066	4.94	4.70
1882-88...	2,591,640	5,621,421	.....	2.17	13,338,110	82,917,301	.....	6.22
1889-95...	1,819,718	4,082,994	.....	2.24	15,074,919	93,257,929	.....	6.19
1865.....	10,872	66,347	6.10	2.82	32,889	228,063	6.93	3.21
1873.....	36,600	102,846	2.81	2.49	121,300	668,363	5.51	4.89
1896.....	192,620	417,234	.....	2.17	1,289,726	6,458,948	.....	5.01

Percentages a 1.18, b 7.35.

Percentages a 5.45, b 44.20.

## KANSAS.

1865-67...	251,435	\$958,819	3.81	2.48	325,550	\$2,372,140	7.29	4.74
1868-71...	444,685	1,042,120	2.34	1.88	1,099,310	8,139,416	7.40	5.95
1872-75...	498,100	1,143,144	2.30	2.07	1,555,400	7,866,762	5.06	4.54
1876-79...	735,400	1,761,225	2.39	2.28	2,127,000	10,918,533	5.13	4.88
1880-83...	2,218,479	5,434,083	.....	2.45	6,766,315	45,221,311	.....	6.68
1884-87...	3,956,867	7,345,972	.....	1.86	8,749,233	51,477,226	.....	5.88
1888-91...	2,456,053	4,631,990	.....	1.89	10,990,275	55,866,722	.....	5.08
1892-95...	1,447,337	3,165,225	.....	2.19	9,693,090	59,683,746	.....	6.16
1865-95...	12,008,356	25,482,578	2.12	2.06	41,306,173	241,545,856	5.85	5.76
1865-67...	251,435	958,819	3.81	2.48	325,550	2,372,140	7.29	4.74
1868-74...	824,785	1,905,604	2.31	1.95	2,422,110	15,147,884	6.25	5.29
1875-81...	1,675,299	4,058,219	2.42	2.30	5,353,300	28,993,713	5.42	5.16
1882-88...	6,183,586	12,220,279	.....	1.98	14,839,409	92,939,120	.....	6.24
1889-95...	3,073,251	6,339,657	.....	2.06	18,305,804	102,092,999	.....	5.58
1865.....	60,486	289,386	4.78	2.21	102,246	538,086	5.26	2.44
1873.....	123,000	301,350	2.45	2.17	457,200	2,423,100	5.30	4.70
1896.....	258,390	413,966	.....	1.60	1,676,487	8,498,279	.....	5.07

Percentages a 2.63, b 10.99.

Percentages a 6.95, b 37.82.

TABLE XV. (d).

A comparative exhibit by states for certain years and periods of years, from 1865 to 1896, inclusive, of the index numbers for the average farm gold values of live stock in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, Missouri, Nebraska, and Kansas.

## OHIO.

## MICHIGAN.

YEARS.	Horses.	Mules.	Sheep.	Swine.	Milk Cows.	Oxen and Other Cattle.	Horses.	Mules.	Sheep.	Swine.	Milk Cows.	Oxen and Other Cattle.
1865-67 ..	69	83	104	133	97	76	79	83	105	121	91	79
1868-71 ..	91	95	63	152	124	109	94	94	67	142	116	103
1872-75 ..	100	98	98	122	102	100	99	97	99	115	101	98
1876-79 ..	85	85	93	140	104	91	102	107	96	146	98	90
1880-83 ..	89	95	113	165	106	108	105	110	118	176	102	103
1884-87 ..	116	121	94	136	114	115	119	126	102	145	112	107
1888-91 ..	119	119	108	136	93	97	123	123	116	144	92	90
1892-95 ..	86	88	100	149	90	88	95	100	107	159	90	80
1865-95 ..	96	100	95	142	104	99	105	111	99	147	100	95
1865-67 ..	69	83	104	133	97	76	79	83	105	121	91	79
1868-74 ..	96	98	76	135	116	106	96	95	79	125	110	101
1875-81 ..	86	86	97	139	100	92	103	107	102	143	96	92
1882-88 ..	112	118	101	153	113	114	116	122	109	164	109	108
1889-95 ..	98	102	105	143	90	91	105	112	112	148	90	83
1865 .....	49	64	95	106	57	46	54	58	94	84	51	47
1873 .....	100	100	100	100	100	100	100	100	100	100	100	100
1896 .....	54	56	71	109	85	87	63	59	75	145	85	70

## INDIANA.

## WISCONSIN.

1865-67 ..	82	93	89	124	97	73	89	80	116	121	90	81
1868-71 ..	98	97	57	152	112	100	103	99	77	142	117	104
1872-75 ..	100	95	94	130	99	92	99	93	96	101	99	100
1876-79 ..	87	91	87	165	91	82	89	88	91	131	97	90
1880-83 ..	100	105	105	194	99	103	96	90	100	181	104	106
1884-87 ..	130	131	98	170	115	123	115	105	85	136	118	117
1888-91 ..	136	127	120	179	88	94	112	99	102	146	95	87
1892-95 ..	99	96	122	194	101	93	90	78	99	167	90	81
1865-95 ..	106	106	91	165	98	97	100	92	95	145	101	96
1865-67 ..	82	93	89	124	97	73	89	80	116	121	90	81
1868-74 ..	100	97	71	139	109	97	101	96	85	120	110	104
1875-81 ..	90	92	90	161	90	83	90	86	91	126	93	90
1882-88 ..	126	126	102	189	111	118	111	102	90	159	115	115
1889-95 ..	113	108	123	186	86	92	99	88	102	157	91	82
1865 .....	61	71	87	103	54	49	53	55	106	88	54	49
1873 .....	100	100	100	100	100	100	100	100	100	100	100	100
1896 .....	58	59	92	148	91	97	61	49	77	151	89	83

## ILLINOIS.

## MISSOURI.

1865-67 ..	88	92	90	132	81	68	103	97	105	143	87	81
1868-71 ..	98	100	55	150	111	98	108	106	80	165	122	109
1872-75 ..	102	99	87	119	102	98	96	95	91	127	99	95
1876-79 ..	89	86	80	170	96	94	88	74	93	191	94	97
1880-83 ..	104	109	99	173	109	115	108	94	111	208	107	117
1884-87 ..	129	121	86	146	121	127	130	111	96	186	125	131
1888-91 ..	128	115	100	160	81	94	130	107	109	185	91	101
1892-95 ..	90	83	104	174	89	91	95	79	124	219	86	97

TABLE XV. (d).—Continued.

ILLINOIS—Continued.

MISSOURI—Continued.

YEARS.	Horses.	Mules.	Sheep.	Swine.	Milch Cows.	Oxen and Other Cattle.	Horses.	Mules.	Sheep.	Swine.	Milch Cows.	Oxen and Other Cattle.
1865-95 ..	104	100	84	155	100	100	108	95	99	185	101	106
1865-67 ..	88	92	90	132	81	68	103	97	105	143	87	81
1868-74 ..	98	101	66	130	108	98	104	104	87	146	114	105
1875-81 ..	91	88	85	160	96	96	89	78	95	176	92	99
1882-88 ..	125	117	90	162	116	123	126	108	101	199	118	127
1889-95 ..	104	96	104	166	88	91	108	91	120	203	87	97
1865 .....	64	68	86	106	52	47	78	75	96	102	46	55
1873 .....	100	100	100	100	100	100	100	100	100	100	100	100
1896 .....	50	52	85	135	102	96	55	47	105	183	116	119

IOWA.

KANSAS.

1865-67 ..	96	105	118	108	77	73	102	101	114	101	74	82
1868-71 ..	114	113	68	144	110	97	123	118	87	127	109	119
1872-75 ..	103	103	100	117	98	96	99	100	95	97	91	95
1876-79 ..	96	108	107	147	91	85	102	101	105	104	85	95
1880-83 ..	112	123	129	174	111	108	113	111	113	142	106	124
1884-87 ..	131	134	116	140	116	119	153	149	86	125	116	135
1888-91 ..	129	127	126	159	84	91	135	129	87	108	77	99
1892-95 ..	89	92	136	185	92	92	97	95	101	131	72	92
1865-95 ..	110	115	102	154	98	98	119	118	95	123	90	107
1865-67 ..	96	105	118	108	77	73	102	101	114	101	74	82
1868-74 ..	109	107	79	123	105	97	110	107	90	113	103	106
1875-81 ..	99	109	110	147	94	90	99	100	106	110	87	93
1882-88 ..	128	134	120	160	113	115	143	140	91	133	110	130
1889-95 ..	104	107	134	173	87	91	110	108	95	119	73	93
1865 .....	69	76	120	85	49	51	77	84	102	52	48	53
1873 .....	100	100	100	100	100	100	100	100	100	100	100	100
1896 .....	51	56	115	143	103	103	51	50	74	108	86	106

MINNESOTA.

NEBRASKA.

1865-67 ..	94	93	100	130	80	89	87	84	110	103	76	77
1868-71 ..	100	108	71	123	106	109	110	105	85	124	116	105
1872-75 ..	96	97	89	101	93	100	97	98	90	92	100	91
1876-79 ..	92	101	79	117	77	90	100	95	98	90	91	87
1880-83 ..	100	115	91	147	94	113	104	91	104	133	104	106
1884-87 ..	117	126	90	111	107	124	117	101	84	121	109	114
1888-91 ..	114	116	89	133	81	91	109	94	82	116	78	82
1892-95 ..	91	95	88	154	73	78	70	66	96	136	67	71
1865-95 ..	102	110	87	131	87	97	95	87	91	124	85	91
1865-67 ..	94	93	100	130	80	89	87	84	110	103	76	77
1868-74 ..	98	102	81	112	101	106	104	100	87	110	111	103
1875-81 ..	93	105	81	115	79	93	98	94	101	96	92	90
1882-88 ..	112	121	91	127	104	121	115	99	87	127	106	111
1889-95 ..	100	104	89	146	76	81	84	77	90	127	70	74
1865 .....	57	64	89	87	46	53	61	61	113	66	52	55
1873 .....	100	100	100	100	100	100	100	100	100	100	100	100
1896 .....	55	60	71	115	80	79	40	39	87	102	80	80



TABLE XV. (e).

Summaries by states, showing the total number and total farm values in currency of the horses, mules, oxen, milch cows, sheep, and swine on the farms in various years and periods of years, in the ten States of Ohio, Indiana, Illinois, Missouri, Michigan, Wisconsin, Iowa, Minnesota, Nebraska, and Kansas, together with the simple average values of the same in currency and gold and corrected average values in gold, and index numbers for the average values calculated in three different ways.

## OHIO.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS TO		
			Cur'ncy.	Gold. (1)	Cor- rected Gold. (2)	Column (1)	Column (2)	Av'age Six An'als.
1865-67.....	31,093,974	398,332,313	12.81	8.33	10.56	75	85	94
1868-71.....	40,082,011	561,017,501	14.00	11.25	12.76	87	102	106
1872-75.....	36,260,900	535,196,340	14.76	13.25	12.76	103	102	103
1876-79.....	33,436,900	454,113,872	13.58	12.93	11.86	100	95	100
1880-83.....	37,554,316	498,607,124	.....	13.28	13.02	103	104	113
1884-87.....	39,126,675	566,197,039	.....	14.47	14.33	113	115	116
1888-91.....	36,991,245	536,546,438	.....	14.50	13.81	113	111	112
1892-95.....	36,355,190	470,474,960	.....	12.94	11.71	100	96	100
1865-95.....	290,901,211	4,020,485,587	13.82	12.71	12.71	99	102	106
1865-67.....	31,093,974	398,332,313	12.81	8.33	10.56	75	85	94
1868-74.....	67,569,011	966,065,186	14.30	12.10	12.80	94	103	105
1875-81.....	59,158,310	799,619,806	13.52	12.87	11.87	100	96	100
1882-88.....	69,007,388	988,409,885	.....	14.32	14.32	112	115	119
1889-95.....	64,072,528	868,058,397	.....	13.55	12.47	105	100	105
1865.....	9,461,330	126,979,891	13.42	6.21	7.43	48	60	70
1873.....	9,304,600	135,186,830	14.53	12.88	12.49	100	100	100
1896.....	7,447,951	79,205,062	.....	10.63	9.00	80	72	77

Percentages a 17.46.

## INDIANA.

1865-67.....	19,139,315	249,742,849	13.05	8.48	12.16	57	87	93
1868-71.....	25,066,870	354,400,891	14.14	11.37	14.41	77	104	103
1872-75.....	24,969,300	374,237,040	14.99	13.46	13.95	91	100	102
1876-79.....	21,594,000	325,040,165	15.05	14.33	13.06	97	94	101
1880-83.....	22,114,271	360,995,064	.....	16.32	15.24	111	109	118
1884-87.....	23,443,728	436,409,431	.....	18.62	17.76	126	128	128
1888-91.....	23,977,073	431,203,107	.....	17.98	16.91	122	122	124
1892-95.....	22,004,287	391,874,418	.....	17.81	14.96	121	121	118
1865-95.....	182,308,844	2,923,902,965	16.04	14.88	14.88	101	101	110
1865-67.....	19,139,315	249,742,849	13.05	8.48	12.16	57	87	93
1868-74.....	44,108,270	636,792,066	14.44	12.22	14.24	83	103	102
1875-81.....	37,842,024	577,129,823	15.25	14.52	13.21	98	96	101
1882-88.....	40,759,431	745,944,187	.....	18.30	17.53	124	126	129
1889-95.....	40,459,804	714,294,040	.....	17.65	15.45	120	111	118
1865.....	5,851,312	82,573,704	14.11	6.57	8.71	45	63	71
1873.....	6,551,000	108,973,490	16.63	14.75	13.88	100	100	100
1896.....	4,562,975	67,301,956	.....	14.75	11.29	100	81	91

Percentages a 10.94.

TABLE XV. (e).—Continued.

## ILLINOIS.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS TO		
			Cur'ncy.	Gold. (1)	Cor- rected Gold. (2)	Column (1)	Column (2)	Average Six Ani'als.
1865-67.....	19,877,618	347,901,543	17.50	11.38	14.64	71	91	92
1868-71.....	27,968,437	532,279,943	19.03	15.30	17.41	95	108	102
1872-75.....	31,838,100	591,347,194	18.57	16.63	17.10	103	106	101
1876-79.....	28,434,200	540,173,882	19.00	18.09	16.51	112	103	103
1880-83.....	32,125,338	620,741,748	.....	19.32	18.99	119	118	117
1884-87.....	34,130,020	737,275,655	.....	21.60	21.39	134	133	122
1888-91.....	37,218,130	715,455,299	.....	19.22	19.43	119	121	113
1892-95.....	35,480,362	643,870,247	.....	18.15	16.47	113	103	105
1865-95.....	247,072,205	4,729,045,511	19.14	17.88	17.88	111	111	107
1865-67.....	19,877,618	347,901,543	17.50	11.38	14.64	71	91	92
1868-71.....	19,407,354	223,239,378	18.71	15.83	17.11	98	106	100
1875-81.....	50,991,434	958,048,418	18.79	17.89	16.63	111	103	103
1882-88.....	58,843,976	1,259,603,658	.....	21.46	19.05	133	119	122
1889-95.....	65,172,640	1,187,003,076	.....	18.21	17.47	113	109	108
1865.....*	6,226,140	116,588,288	18.69	8.65	10.66	54	66	71
1873.....	8,220,600	148,532,894	18.19	16.13	16.08	100	100	100
1896.....	6,813,394	109,182,176	.....	16.02	12.96	99	71	87

Percentages a 14.83.

## MICHIGAN.

1865-67.....	13,782,919	154,480,298	11.21	7.29	11.02	69	86	93
1868-71.....	19,407,354	223,239,378	11.50	9.25	12.62	89	99	103
1872-75.....	19,938,900	237,479,307	11.91	10.70	12.82	101	101	102
1876-79.....	15,612,000	218,106,685	13.97	13.30	12.79	126	100	107
1880-83.....	16,409,744	255,745,666	.....	15.58	13.86	148	109	119
1884-87.....	17,986,194	300,270,412	.....	16.69	14.59	158	114	119
1888-91.....	18,227,545	309,617,578	.....	16.99	14.11	161	111	115
1892-95.....	18,105,539	271,165,000	.....	14.98	11.95	142	94	105
1865-95.....	139,470,195	1,970,104,324	14.13	13.18	13.18	115	103	110
1865-67.....	13,782,919	154,480,298	11.21	7.29	11.02	69	86	93
1868-71.....	34,368,354	399,468,152	11.62	9.83	12.62	93	99	101
1875-81.....	27,795,734	393,254,133	14.15	13.47	12.91	128	101	107
1882-88.....	31,623,020	521,953,570	.....	16.50	14.50	156	114	121
1889-95.....	31,900,168	500,948,171	.....	15.70	12.86	149	101	108
1865.....	4,073,874	47,311,803	11.61	5.38	7.35	51	58	65
1873.....	5,062,300	60,212,177	11.89	10.55	12.76	100	100	100
1896.....	3,536,588	46,936,728	.....	13.27	9.40	102	74	70

Percentages a 8.37.

TABLE XV. (c)—Continued.

## WISCONSIN.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS TO		
			Cur'ncy.	Gold. (1)	Cor- rected Gold. (2)	Column (1)	Column (2)	Average Six Ani'als.
1865-67.....	7,546,491	136,781,398	18.13	11.78	14.84	72	91	96
1868-71.....	12,371,464	222,928,383	18.02	14.49	17.56	90	107	107
1872-75.....	11,924,400	216,199,146	18.13	16.28	16.23	100	98	98
1876-79.....	12,651,400	207,950,238	16.44	15.65	15.31	96	94	98
1880-83.....	14,618,466	244,346,107	.....	16.71	17.16	103	105	113
1884-87.....	15,669,761	294,762,480	.....	18.81	18.85	116	115	113
1888-91.....	14,907,940	282,451,812	.....	18.95	17.08	117	105	107
1892-95.....	16,047,797	276,791,183	.....	17.25	15.21	106	94	101
1865-95.....	105,737,719	1,882,210,747	17.80	16.63	16.63	102	101	105
1865-67.....	7,546,491	136,781,398	18.13	11.78	14.84	72	91	96
1868-74.....	21,242,264	384,393,756	18.10	15.31	16.90	94	103	103
1875-81.....	22,242,137	364,527,290	16.39	15.60	15.04	96	92	96
1882-88.....	27,396,209	505,654,591	.....	18.46	18.67	114	114	115
1889-95.....	27,310,618	490,853,712	.....	17.97	15.52	113	95	103
1865.....	2,125,866	36,911,165	17.36	8.04	9.30	50	55	68
1873.....	3,017,900	55,207,951	18.29	16.22	16.39	100	100	100
1896.....	3,596,787	55,580,573	.....	15.45	12.71	95	78	85

Percentages a 6.37.

## MISSOURI.

1865-67.....	9,101,908	143,420,722	15.76	10.24	11.22	102	99	103
1868-71.....	20,431,802	274,577,167	13.44	10.80	13.04	108	113	115
1872-75.....	22,867,700	262,635,720	11.49	10.31	11.25	103	99	101
1876-79.....	24,319,300	295,351,323	12.14	11.53	11.21	115	99	106
1880-83.....	31,169,476	415,370,778	.....	13.33	13.34	133	117	124
1884-87.....	33,600,251	492,568,693	.....	14.66	14.93	146	122	130
1888-91.....	36,340,571	491,767,024	.....	13.53	13.51	135	118	121
1892-95.....	35,455,516	477,839,614	.....	13.47	11.80	134	103	117
1865-95.....	213,286,524	2,853,531,041	13.38	12.70	12.70	127	111	116
1865-67.....	9,101,908	143,420,722	15.76	10.24	11.22	102	99	103
1868-74.....	37,944,102	476,974,374	12.57	10.63	12.44	106	109	110
1875-81.....	44,135,297	537,907,518	12.19	11.60	11.20	116	99	105
1882-88.....	58,369,998	843,627,400	.....	14.45	14.67	144	128	130
1889-95.....	63,735,219	851,601,027	.....	13.36	12.40	136	109	118
1865.....	2,809,734	44,431,766	15.81	7.32	8.00	73	70	75
1873.....	5,898,300	66,549,241	11.28	10.01	11.44	100	100	100
1896.....	7,504,547	93,718,708	.....	12.49	10.37	124	91	104

Percentages a 12.80.

TABLE XV. (e).—Continued.

## IOWA.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS TO		
			Cur'ncy.	Gold. (1)	Cor- rected Gold. (2)	Column (1)	Column (2)	Average Six Ani'als.
1865-67.....	14,095,638	242,587,013	15.08	9.80	12.74	79	89	96
1868-71.....	24,478,807	376,756,787	15.39	12.37	15.84	99	110	108
1872-75.....	29,869,900	404,238,681	13.53	12.15	15.04	98	104	103
1876-79.....	26,730,000	407,062,099	15.23	14.50	14.28	116	99	106
1880-83.....	31,458,490	577,528,899	.....	18.36	17.07	147	118	126
1884-87.....	37,567,235	742,208,903	.....	19.76	18.10	158	125	126
1888-91.....	43,533,388	759,319,588	.....	17.44	16.46	140	114	119
1892-95.....	48,829,791	790,135,002	.....	16.18	14.93	130	103	114
1865-95.....	256,563,249	4,269,836,972	16.64	15.83	15.83	127	110	113
1865-67.....	14,095,638	212,587,013	15.08	9.80	12.74	79	89	96
1868-74.....	47,107,607	674,913,254	14.34	12.13	15.22	98	105	103
1875-81.....	46,412,890	744,151,866	16.03	15.26	14.70	122	102	108
1882-88.....	65,540,580	1,267,539,105	.....	19.34	18.03	155	125	128
1889-95.....	83,406,534	1,370,645,734	.....	16.43	14.39	132	99	116
1865.....	4,065,899	66,572,496	16.37	7.58	9.20	61	64	75
1873.....	7,043,800	98,965,439	14.05	12.46	14.40	100	100	100
1896.....	10,175,277	145,286,248	.....	14.28	12.56	114	87	95

Percentages a 15.44.

## MINNESOTA.

1865-67.....	1,481,455	36,931,881	24.93	16.20	21.50	72	91	98
1868-71.....	2,894,452	77,925,523	26.92	21.65	24.41	96	104	103
1872-75.....	3,939,560	96,114,571	24.40	21.91	22.70	97	96	96
1876-79.....	5,065,900	117,414,910	23.18	22.06	21.02	98	89	93
1880-83.....	6,243,311	154,184,836	.....	24.70	24.26	110	103	110
1884-87.....	7,469,692	207,712,216	.....	27.81	27.16	124	111	113
1888-91.....	9,204,370	225,476,855	.....	24.50	24.13	110	103	104
1892-95.....	11,263,805	233,924,546	.....	20.77	20.39	92	87	97
1865-95.....	47,562,545	1,149,685,338	24.17	23.25	23.25	104	99	102
1865-67.....	1,481,455	36,931,881	24.93	16.20	21.50	72	91	98
1868-74.....	5,750,312	148,671,479	25.86	21.88	23.71	97	101	100
1875-81.....	9,020,066	211,309,400	23.43	22.31	21.28	99	90	94
1882-88.....	12,990,365	350,061,133	.....	26.95	26.65	120	113	113
1889-95.....	18,320,347	402,711,445	.....	21.98	21.69	98	92	99
1865.....	412,041	8,860,015	21.53	9.97	13.02	45	51	66
1873.....	958,000	24,263,260	25.32	22.47	23.56	100	100	100
1896.....	2,788,812	46,229,683	.....	16.58	16.12	72	69	77

Percentages a 2.85.



## STATISTICS OF LABOR.

TABLE XV. (e).—Continued.

## NEBRASKA.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS TO		
			Cur'ncy.	Gold. (1)	Cor- rected Gold. (2)	Column (1)	Column (2)	Average Six Ani'als.
1865-67.....	449,329	11,423,877	25.42	16.52	15.65	79	88	90
1868-71.....	1,035,255	29,155,993	28.16	22.64	20.50	106	115	108
1872-75.....	1,304,300	32,107,349	24.62	22.11	18.00	103	101	95
1876-79.....	3,142,407	67,083,770	21.35	20.32	17.27	95	97	94
1880-83.....	10,250,231	184,288,046	.....	17.98	20.00	84	112	107
1884-87.....	17,839,375	337,672,803	.....	18.93	21.31	88	119	108
1888-91.....	19,101,644	332,063,996	.....	17.38	17.81	81	100	94
1892-95.....	20,208,424	326,002,712	.....	16.13	14.52	75	81	84
1865-95.....	73,330,965	1,319,798,546	18.00	17.82	17.82	83	100	96
1865-67.....	449,329	11,423,877	25.42	16.52	15.65	79	88	90
1868-74.....	2,020,955	53,250,478	26.35	22.29	19.53	104	110	103
1875-81.....	7,475,468	141,266,386	18.90	17.99	17.48	84	98	95
1882-88.....	28,722,775	536,891,038	.....	18.69	20.97	87	117	108
1889-95.....	34,662,438	576,966,767	.....	16.65	15.52	79	87	87
1865.....	125,623	3,216,321	25.60	11.85	10.95	51	62	68
1873.....	328,700	7,944,152	24.17	21.44	17.80	100	100	100
1896.....	3,755,374	55,381,849	.....	14.75	11.46	67	65	71

Percentages a 4.40.

## KANSAS.

1865-67.....	1,286,129	26,533,561	20.63	13.41	14.61	74	91	96
1868-71.....	3,315,361	79,272,374	23.91	19.22	19.13	106	118	114
1872-75.....	5,657,300	114,542,652	20.25	18.18	15.45	100	96	96
1876-79.....	7,180,600	133,396,820	18.58	17.69	15.61	98	97	97
1880-83.....	16,168,699	280,432,111	.....	17.34	19.04	96	122	126
1884-87.....	23,364,900	456,570,412	.....	19.54	21.95	108	136	126
1888-91.....	26,572,279	444,920,510	.....	16.87	17.61	92	110	119
1892-95.....	25,882,520	439,844,162	.....	16.99	15.25	92	95	114
1865-95.....	109,227,788	1,975,512,602	18.10	17.69	17.70	98	111	113
1865-67.....	1,286,129	26,533,561	20.63	13.41	14.61	74	91	96
1868-74.....	7,669,361	163,938,034	18.12	15.33	17.26	83	107	103
1875-81.....	15,083,811	260,647,438	17.28	16.45	15.78	91	97	108
1882-88.....	39,086,381	746,089,014	.....	19.09	21.08	105	131	128
1889-95.....	46,102,106	773,304,555	.....	16.77	15.89	92	99	116
1865.....	371,285	7,324,665	19.73	9.13	10.05	50	62	75
1873.....	1,467,500	30,013,898	20.45	18.14	16.08	100	100	100
1896.....	5,269,323	80,049,272	.....	15.19	12.99	84	81	95

Percentages a 6.56.

TABLE XV. (f).

Summaries by animals showing the total number and total farm values in currency and gold of the horses, mules, milch cows, oxen, sheep, and swine on the farms in various years and periods of years in the ten States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the simple average values in gold and currency, and corrected average values in gold, and index numbers for the average values calculated in various ways.

## HORSES.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.			
			Currency.	Gold. (1)	Corrected Gold. (2)	To Columns		Average Ten States.	According to Relative Importance
						(1)	(2)		
1865-67.....	7,547,729	599,861,757	79.48	51.66	52.31	85	89	89	84
1868-71.....	14,472,155	1,094,399,454	75.62	60.80	61.24	100	102	104	100
1872-75.....	18,634,400	1,241,576,495	66.63	59.83	59.90	99	100	99	99
1876-79.....	20,552,800	1,180,106,749	57.42	54.66	54.83	90	92	93	91
1880-83.....	22,260,503	1,363,750,582	.....	61.26	61.25	101	102	103	102
1884-87.....	24,394,851	1,835,603,814	.....	75.24	75.37	124	126	126	126
1888-91.....	27,265,525	2,017,197,883	.....	73.98	74.64	122	125	124	124
1892-95.....	33,411,909	1,782,094,451	.....	53.34	54.29	88	91	90	90
1865-95.....	168,539,872	11,114,591,185	65.95	62.25	62.35	103	105	105	104
1865-67.....	7,547,729	599,861,757	79.48	51.66	52.31	85	88	89	84
1868-74.....	28,315,355	2,028,360,073	71.64	60.54	60.47	100	101	102	100
1875-81.....	36,408,331	2,121,323,123	58.26	55.72	55.49	92	93	94	91
1882-88.....	42,109,822	3,062,728,955	.....	72.73	72.89	120	121	121	122
1889-95.....	54,158,635	3,302,317,277	.....	60.98	61.88	101	103	103	103
1865.....	2,342,702	185,833,472	79.32	36.73	36.97	61	62	62	60
1873.....	4,626,100	315,568,848	68.21	60.50	59.86	100	100	100	100
1896.....	7,621,895	239,202,824	.....	31.38	32.28	52	54	53	51

Percentages 6, 10.12.

## MULES.

1865-67.....	469,406	45,327,309	96.56	62.76	63.18	93	95	91	94
1868-71.....	1,006,591	86,450,853	85.88	69.05	70.12	103	105	103	104
1872-75.....	1,352,260	98,583,078	72.90	65.47	65.37	97	98	98	98
1876-79.....	1,872,600	113,813,170	60.78	57.86	58.35	86	88	88	87
1880-83.....	2,171,619	146,748,896	.....	67.58	67.61	101	101	103	101
1884-87.....	2,354,883	192,230,916	.....	81.63	81.34	121	122	123	122
1888-91.....	2,473,754	189,635,037	.....	76.66	76.79	114	114	116	113
1892-95.....	2,515,545	140,665,153	.....	55.92	56.64	83	85	87	83
1865-95.....	14,216,658	1,013,454,412	71.29	67.88	67.88	101	102	103	101
1865-67.....	469,406	45,327,309	96.56	62.76	63.18	93	95	91	94
1868-74.....	1,970,051	158,899,691	80.66	68.80	68.46	102	103	101	102
1875-81.....	3,336,248	206,618,781	61.93	59.19	59.34	87	90	94	89
1882-88.....	4,069,836	321,018,009	.....	78.88	78.73	117	118	119	118
1889-95.....	4,371,117	281,590,622	.....	64.42	64.94	96	97	99	96
1865.....	144,580	14,818,023	102.49	47.45	48.18	71	72	68	71
1873.....	316,100	23,952,395	75.77	67.21	66.99	100	100	100	100
1896.....	581,258	19,567,955	.....	33.66	34.30	50	52	53	50

Percentages 6, 0.85.

TABLE XV. (f).—Continued.

## COWS.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.			
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Columns		Av'rge Ten States.	According to Relative Importance
						(1)	(2)		
1865-67.....	8,715,235	315,582,267	36.21	23.54	23.10	89	88	85	89
1868-71.....	13,985,551	531,591,787	38.01	30.56	29.95	116	116	114	116
1872-75.....	16,597,100	484,725,522	29.21	26.23	25.90	99	99	96	99
1876-79.....	17,904,500	465,721,704	26.01	24.76	24.54	94	94	92	94
1880-83.....	20,926,380	574,177,205	.....	27.44	27.46	104	105	103	105
1884-87.....	25,254,060	761,848,912	.....	30.17	30.31	114	117	115	116
1888-91.....	28,431,390	643,648,370	.....	22.64	22.99	86	88	86	87
1892-95.....	30,506,016	674,384,083	.....	22.11	22.88	84	88	85	85
1865-95.....	162,320,232	4,451,679,850	27.43	25.67	25.67	97	99	96	98
1865-67.....	8,715,235	315,582,267	36.21	23.54	23.10	89	88	85	89
1868-71.....	26,282,751	900,203,531	34.25	29.20	28.57	110	110	109	111
1872-75.....	31,831,331	820,583,180	25.78	24.42	24.39	93	93	92	93
1876-79.....	43,240,892	1,264,141,383	.....	29.23	30.38	111	116	112	112
1880-83.....	52,250,023	1,151,169,489	.....	22.03	22.28	83	85	84	85
1884-87.....	2,820,894	85,407,546	30.28	14.02	13.83	53	53	51	53
1873.....	4,111,300	122,128,579	29.76	26.40	26.12	100	100	100	100
1896.....	7,370,342	178,475,467	.....	24.22	24.44	92	94	92	93

Percentages 6, 9.76.

## OXEN.

1865-67.....	12,782,627	315,172,440	24.66	16.03	15.74	76	76	78	75
1868-71.....	16,943,714	539,782,669	27.07	21.76	21.47	103	104	105	103
1872-75.....	25,079,800	567,345,510	22.62	20.31	19.94	96	97	97	97
1876-79.....	27,834,707	545,348,016	19.59	18.65	18.59	88	90	90	90
1880-83.....	36,904,023	838,059,300	.....	22.71	22.83	108	111	110	111
1884-87.....	45,055,817	1,131,156,989	.....	25.11	25.14	119	122	121	122
1888-91.....	48,990,486	933,128,018	.....	19.05	19.24	90	93	95	93
1892-95.....	53,315,008	949,929,961	.....	17.82	18.18	84	88	86	87
1865-95.....	269,906,234	5,819,922,903	21.56	20.45	20.45	101	99	99	99
1865-67.....	12,782,627	315,172,440	24.66	16.03	15.74	76	76	78	75
1868-71.....	38,632,016	971,541,435	25.15	21.21	20.90	101	101	102	102
1872-75.....	50,666,893	1,016,267,728	20.06	19.09	19.31	90	94	92	93
1876-79.....	76,697,103	1,871,771,729	.....	24.40	24.44	115	118	118	118
1880-83.....	91,127,595	1,645,169,571	.....	18.05	18.33	85	89	88	89
1884-87.....	4,323,484	96,934,189	22.42	10.38	10.35	49	50	51	50
1873.....	6,234,200	147,431,638	23.65	21.15	20.63	100	100	100	100
1896.....	11,534,579	225,711,758	.....	19.57	19.64	93	95	94	94

Percentages 6, 16.21.

TABLE XV. (f).—Continued.

## SHEEP.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.			
			Currency.	Gold. (1)	Corrected Gold. (2)	To Columns		Avr'ge Ten States.	According to Relative Importance
						(1)	(2)		
1865-67.....	58,532,424	234,645,842	4.01	2.61	2.60	105	103	105	103
1868-71.....	78,530,160	158,464,471	2.02	1.62	1.65	65	65	71	65
1872-75.....	62,868,000	167,926,301	2.67	2.40	2.41	96	96	94	96
1876-79.....	51,371,700	124,540,735	2.42	2.31	2.32	93	92	93	92
1880-83.....	53,214,306	146,849,012	.....	2.76	2.79	111	111	108	110
1884-87.....	55,635,137	130,794,064	.....	2.35	2.40	94	96	94	94
1888-91.....	47,375,341	128,577,531	.....	2.71	2.75	109	109	104	109
1892-95.....	48,411,036	129,340,950	.....	2.67	2.70	107	107	108	106
1865-95.....	455,938,104	1,221,138,906	2.68	2.38	2.38	96	94	94	95
1865-67.....	58,532,424	234,645,842	4.01	2.61	2.60	105	103	105	103
1868-71.....	126,096,860	236,483,748	2.27	1.92	1.94	77	77	80	77
1875-81.....	91,614,539	231,043,403	2.52	2.41	2.41	96	95	95	92
1882-88.....	95,888,581	239,913,299	.....	2.50	2.54	100	100	98	99
1889-95.....	83,805,700	229,052,614	.....	2.73	2.75	110	109	107	109
1865.....	16,715,654	87,416,642	5.23	2.42	2.40	97	95	99	95
1873.....	10,034,600	45,124,703	2.81	2.49	2.52	100	100	100	100
1896.....	8,664,287	17,480,091	.....	2.02	2.03	81	80	85	80

Percentages 6, 27.37.

## SWINE.

1865-67.....	29,807,355	207,545,840	6.96	4.52	4.55	127	125	122	126
1868-71.....	49,113,640	320,864,706	6.53	5.25	5.33	147	145	142	149
1872-75.....	64,038,800	303,941,094	4.75	4.26	4.25	119	116	112	119
1876-79.....	58,630,400	336,163,390	5.73	5.46	5.40	153	147	140	153
1880-83.....	82,635,511	522,655,384	.....	6.32	6.32	177	172	169	171
1884-87.....	97,503,083	520,013,349	.....	5.33	5.23	150	143	142	143
1888-91.....	111,337,689	616,635,368	.....	5.54	5.57	155	152	147	149
1892-95.....	101,473,667	645,507,246	.....	6.36	6.31	178	170	167	169
1865-95.....	594,540,145	3,473,326,377	5.84	5.54	5.54	155	151	147	150
1865-67.....	29,807,355	207,545,840	6.96	4.52	4.55	127	125	122	126
1868-71.....	98,669,740	540,467,117	5.48	4.64	4.68	130	128	125	131
1875-81.....	106,299,829	592,025,863	5.57	5.31	5.28	148	144	137	146
1882-88.....	170,333,889	1,006,200,206	.....	5.91	5.91	166	161	157	159
1889-95.....	189,429,332	1,127,087,351	.....	5.95	5.94	167	162	155	159
1865.....	9,175,790	70,330,242	7.66	3.55	3.52	99	96	90	99
1873.....	17,131,400	69,117,937	4.03	3.57	3.67	100	100	100	100
1896.....	19,678,667	98,440,161	.....	5.00	4.96	140	135	134	134

Percentages 6, 35.70.



TABLE XV. (g).

A summary by years and certain periods of years, from 1865 to 1896, inclusive, of the horses, mules, cows, oxen, sheep, and swine on the farms of the States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, and Kansas, together with the total value of the same in currency, and the simple and corrected average values in gold and currency, and index numbers calculated by different methods.

## ALL LIVE STOCK.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.				
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'rge Six Anim- als.	According to Relative Importance.	
						(1)	(2)		(1)	(2)
1865-67....	117,854,776	1,718,135,455	14.58	9.48	12.96	72	89	112	89	95
1867-71....	177,051,813	2,731,553,940	15.43	12.40	15.55	94	107	107	104	112
1872-75....	188,570,360	2,864,098,000	15.19	13.64	14.56	103	100	99	100	104
1876-79....	178,166,707	2,765,693,764	15.52	14.79	14.02	112	96	100	96	107
1880-83....	218,112,342	3,592,240,379	.....	16.47	16.26	124	112	116	112	126
1884-87....	250,197,831	4,571,648,044	.....	18.27	17.90	138	123	120	124	127
1888-91....	265,874,185	4,528,822,207	.....	17.03	16.31	129	112	115	111	115
1892-95....	269,633,231	4,321,921,844	.....	16.03	14.17	121	98	104	96	111
1865-95....	1,663,461,245	27,094,113,633	16.27	15.33	15.33	116	106	107	106	114
1865-67....	117,854,776	1,718,135,455	14.58	9.48	12.96	72	89	112	89	95
1868-74....	319,966,773	4,885,955,595	15.27	12.98	15.08	98	104	103	103	109
1875-81....	320,157,171	4,987,862,078	15.58	14.87	14.17	112	98	101	95	107
1882-88....	432,340,123	7,765,773,581	.....	17.97	17.79	136	122	124	122	130
1889-95....	475,142,402	7,736,386,924	.....	16.28	14.82	123	102	106	101	112
1865.....	35,523,104	540,740,114	15.22	7.05	9.11	53	63	70	64	66
1873.....	48,452,700	723,324,100	14.93	13.24	14.52	100	100	100	100	100
1896.....	55,451,028	778,872,256	.....	14.04	11.48	106	76	85	81	90

- (1) With numbers and values of live stock as reported by Agricultural Department.  
 (2) With numbers and values in reduced proportions as explained in report.

## CHAPTER XVI.

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### LIVE STOCK IN SEVEN SELECTED STATES.

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#### FARM VALUES OF DIFFERENT ANIMALS IN THE SEVEN STATES.

The gold farm value of horses, when comparisons are made between 1865 to 1867 and 1892 to 1895, increased in New York \$24.33 per head, in Pennsylvania \$8.99, in Kentucky \$11.05, in Virginia \$6.86, in Georgia \$6.19, in Texas \$2.17, and in California \$0.63. Here is an advance for all the states. If comparisons are made between the average farm values of Jan. 1, 1896, there would be found a decline in all of these states about equal to the advance noted above for the four-year period ending with 1894. The different results obtained by the two comparisons calls attention to the special decline in horseflesh which exists at the present time in the United States, due to the great use of the bicycle and the introduction of mechanical power upon street railways. The effects of these two causes are heightened by the results of the panic of 1893, depressing the prices of all products of the farm.

The price movement for mules is substantially the same as for horses. There was an advance, when comparing gold average farm prices in 1865 to 1867 with 1892 to 1895, in all the states excepting Kentucky and California. There was a fall for all the states, when comparisons are made with the prices of January, 1896.

The average farm gold values for milch cows, when comparing 1865 to 1867 with 1892 to 1896, advanced in Georgia and Texas, and declined somewhat in the other states. In all states the average values, Jan. 1, 1896, were lower than for the four years, 1892 to 1895.

For oxen and other cattle, when comparisons are made between 1865 to 1867 and 1892 to 1895, there was an advance in New York, Virginia, Georgia, and Texas, and a decline in Pennsylvania and Kentucky. No data for similar comparisons exist for Califor-

nia. Values Jan. 1, 1896, were in Kentucky, Virginia, and Texas greater than the averages for the four years ending with January, 1895. The other four states showed a decline.

In the seven states as in the ten the average gold values were much higher in 1865 to 1867 than for the four or seven years next succeeding. In most states the prices for 1892 to 1895 were substantially the same as from 1865 to 1867, and from twenty-five to forty per cent higher than for the four years, 1868 to 1871.

The price of swine, when comparisons are made between 1865 to 1867 and 1892 to 1895, advanced in Pennsylvania, Kentucky, Virginia, Georgia, and Texas. They declined in New York from \$8.76 to \$8.26 per head. No data for a similar comparison are available for California. The price on Jan. 1, 1896, was in all the states lower than for the four-year period ending with Jan. 1, 1895. Swine thus recorded in the most marked degree the general upward trend of farm values from 1865 to the panic of 1893 and the decline that has followed that panic. The hog and corn are the two best barometers of farm prosperity, measuring the advance to 1893 and the extent of the fall since that time.

#### AVERAGE OF ALL ANIMALS IN SEVEN STATES.

The following exhibit by seven-year periods shows the price movement for the corrected average values of all live stock in the seven states from 1865 to 1895:

YEARS.	CORRECTED GOLD FARM VALUES FOR ALL LIVE STOCK.						
	New York.	Pen's'lvania	Kentucky.	Virginia.	Georgia.	Texas.	California.
1865-67.....	\$19.55	\$17.84	\$12.76	\$13.02	\$10.28	\$5.22	.....
1868-74.....	25.17	22.86	13.80	15.49	12.57	6.38	\$8.90
1875-81.....	21.70	19.71	12.00	13.88	10.51	7.71	6.99
1882-88.....	25.18	23.34	15.30	17.38	12.19	10.67	8.79
1889-95.....	21.89	19.78	13.46	15.67	11.85	8.15	7.40

For all the states with data given in 1865 to 1867 there existed a general average of price from ten to sixty per cent lower than for the seven years ending with Jan. 1, 1895. Here is an advance, though not a regular one, in every state. Farm values rose until the middle of the period 1882 to 1888, and thereafter declined. The factors raising the selling value of all farm crops from 1879 to 1882; and a little later advanced the average price of all live stock in the same years. The cessation of the forces producing high prices led to a subsequent price decline for all live stock, a

decline specially heightened by the effect of electric railways and bicycles upon the selling price of horses and mules.

#### AVERAGE FARM VALUES FOR SEVEN STATES BY ANIMALS.

In the preceding paragraph was given a resume of the price movement for live stock in seven states by states. A similar resume by animals presents the same story of a price advance, only in another way. It is as follows:

YEARS.	CORRECTED AVERAGE GOLD FARM VALUES FOR					
	Horses.	Mules.	Cows.	Oxen.	Sheep.	Swine.
1865-67.....	\$43.20	\$59.68	\$27.73	\$11.40	\$2.73	\$4.31
1868-74.....	62.05	73.93	30.48	14.11	2.26	4.28
1875-81.....	54.34	60.78	25.21	13.99	2.30	4.59
1882-88.....	68.93	75.83	28.76	18.67	2.38	5.04
1889-95.....	61.36	69.04	23.45	13.82	2.33	4.84

Here is a gain from the first to the last period for all excepting cows and sheep. Sheep show an advance from the second to the last period, and the cows alone show a continuous decline. All animals with the exception of oxen show a great decrease when prices for Jan. 1, 1896, are compared with the average for the four or seven years ending with Jan. 1, 1895.

#### FARM VALUES ACCORDING TO RELATIVE IMPORTANCE.

The index numbers according to relative importance show for the several kinds of live stock about the same price movement as that recorded by the corrected average value or their index numbers.

#### SUMMARY FOR ALL LIVE STOCK IN THE SEVEN STATES.

Table (g) for the seven states shows by its simple and corrected average values and its index numbers calculated according to relative importance a gain in average farm values when comparing the earlier and later seven and four-year periods. The following summary shows the gain for simple average and corrected average gold farm values for seven-year periods:



YEARS.	AVERAGE GOLD FARM VALUES.	
	Simple Averages.	Corrected Averages.
1865-67.....	\$11.63	\$11.48
1868-74.....	14.34	13.82
1875-81.....	12.52	12.54
1882-88.....	14.24	15.36
1889-95.....	13.77	13.04

Here is a gain from the earlier to the later period of from eleven to eighteen per cent, according to which set of averages are used to measure the price advance.

The index numbers calculated according to relative importance show an advance in average value a little less than those calculated for simple or corrected average values. They record for live stock a marked advance in the seven selected states, while the same index numbers for the nine crops for the same states record a slight price decline. The index numbers according to the relative importance of the nine crops and the live stock in the seven states are as follows:

YEARS.	INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.		
	Nine Crops.	All Live Stock.	
		1	2
1865-67.....	79	85	93
1868-74.....	101	101	103
1875-81.....	86	90	97
1882-88.....	86	112	119
1889-95.....	78	96	103

In the foregoing summary the index numbers for live stock are calculated, those under (1), by including the full value of all live stock as given in Tables (a) to (f). Those numbers under (e) are calculated by combining the figures for the various animals in the reduced proportions explained at length in the preceding chapter. These figures show considerable variation from those for crops. The reason of this variation is easy to find. Live stock interests as a whole have in the seaboard states suffered far less from competition than have such staples as wheat. New York and Pennsylvania by their great live stock interests have been protected in part from the losses from Western competition that have come in thirty years through cheapening freight rates. This has led those states to increase their relative production of hay with its

advancing value, and to decrease their output of wheat and similar crops with selling prices. Hence the smaller relative loss shown by these states in the nine crops than that exhibited by the figures for Georgia. The protection from loss to seaboard states from Western competition must come, as has already been mentioned, by an increase in such farm products as have not been but slightly affected in farm values by changing railway rates. The losses from falling rates in the seaboard and gulf states will go on with more crushing force with increasing railway competition for all farmers who persist in the old system of crops, and continue to seek a living by increasing their output of a crop like cotton, already produced in excess of the world's demands for the same.

The increase in average live stock values in the seven states has given to the owners a small share in the benefits of recent economic changes in farming. That is the only relief found to the dark picture of farm prosperity on the American seaboard. Bright lines can come to the farmer only by raising more hogs and hominy, and less wheat and cotton; in a word, a broad and comprehensive system of diversified husbandry suited to the modern condition created by cheap railroad rates from the Mississippi Valley to the sea coast.

TABLE XVI. (a).

An exhibit by states for various years and periods of years, from 1865 to 1896, inclusive, of the total number of horses and mules on the farms of the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency and their average value in currency and gold.

## NEW YORK.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur-rency.	Gold.			Cur'ncy.	Gold.
1865-67..	1,454,898	114,876,233	78.96	51.32	5,949	617,279	103.76	67.44
1868-71..	2,158,421	218,116,458	101.05	81.24	29,641	3,720,210	125.51	100.91
1872-75..	2,643,700	255,462,617	96.63	86.77	75,600	9,228,525	122.07	109.62
1876-79..	3,160,600	256,955,663	81.30	77.40	61,300	5,590,997	91.21	86.83
1880-83..	3,045,878	238,984,130	.....	78.46	33,528	3,069,041	.....	91.54
1884-87..	2,572,642	249,191,982	.....	96.86	20,454	2,255,340	.....	110.26
1888-91..	2,668,979	255,138,551	.....	95.59	21,074	2,145,935	.....	101.83
1892-95..	999,655	60,945,027	.....	60.97	19,639	1,645,255	.....	83.77
1865-95..	20,432,546	1,795,324,565	87.87	83.04	267,185	28,272,582	105.82	99.47
1865-67..	1,454,898	114,876,233	78.96	51.32	5,949	617,279	103.76	67.44
1868-74..	4,136,321	413,776,919	100.04	84.63	86,741	10,821,975	124.76	105.55
1875-81..	5,633,189	452,209,714	80.29	76.44	103,164	9,800,483	95.00	90.44
1882-88..	4,485,749	417,999,608	.....	93.18	35,828	3,794,021	.....	105.90
1889-95..	4,722,389	396,372,091	.....	83.93	35,503	3,238,824	.....	91.23
1865.....	408,763	35,089,160	85.84	39.74	1,732	180,520	104.22	48.25
1873.....	659,300	67,630,994	102.58	90.99	19,100	2,484,146	130.06	115.36
1896.....	654,045	31,246,088	.....	47.77	4,674	277,737	.....	59.42

Percentages a 22.26, b 11.09.

Percentages a 1.89, b 0.14.

## PENNSYLVANIA.

1865-67..	1,183,466	\$108,219,181	91.44	59.44	39,011	\$4,308,626	110.45	71.79
1868-71..	1,855,355	192,831,311	103.93	83.56	76,851	9,840,631	128.05	102.95
1872-75..	2,222,900	218,196,026	98.16	88.15	100,300	12,619,673	125.82	112.99
1876-79..	2,405,000	179,840,734	74.78	71.19	102,900	9,107,497	88.51	84.26
1880-83..	2,287,635	173,020,421	.....	75.63	93,349	8,455,064	.....	90.57
1884-87..	2,293,415	219,239,080	.....	95.60	95,095	10,529,129	.....	110.72
1888-91..	2,373,340	221,790,637	.....	93.45	96,449	10,327,565	.....	107.08
1892-95..	2,555,719	174,894,337	.....	68.43	131,666	11,002,521	.....	83.56
1865-95..	17,176,830	1,488,031,727	86.63	80.43	735,621	76,190,706	103.57	96.55
1865-67..	1,183,466	108,219,181	91.44	59.44	39,011	4,308,626	110.45	71.79
1868-74..	3,504,555	357,237,225	101.94	86.24	151,551	19,442,320	128.29	108.53
1875-81..	4,183,100	317,890,670	75.99	72.34	175,653	16,148,239	91.93	87.52
1882-88..	3,971,622	363,756,780	.....	91.59	165,434	17,601,518	.....	106.40
1889-95..	4,334,087	340,927,871	.....	78.66	203,972	18,690,093	.....	91.63
1865.....	382,288	32,931,673	86.14	39.88	10,486	1,175,973	112.14	51.92
1873.....	546,100	55,953,406	102.46	90.88	24,900	3,195,168	128.32	113.82
1896.....	607,516	28,629,629	.....	47.13	36,509	2,216,993	.....	60.72

Percentages a 18.71, b 11.11.

Percentages a 5.21, b 0.47.

TABLE XVI. (a).—Continued.

## KENTUCKY.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur- rency	Gold.			Cur- rency.	Gold.
1865-67...	642,047	48,414,768	75.41	49.02	191,206	19,032,890	99.54	64.70
1868-71...	1,084,492	80,415,441	74.15	59.62	293,905	25,066,573	85.29	68.57
1872-75...	1,375,700	89,599,103	65.13	58.49	332,800	24,086,626	72.38	65.00
1876-79...	1,499,200	75,840,551	50.59	48.16	404,200	20,202,160	49.98	47.58
1880-83...	1,539,725	85,979,718	.....	55.84	427,081	26,958,405	.....	63.12
1884-87...	1,511,804	103,484,958	.....	68.45	476,974	35,406,251	.....	74.23
1888-91...	1,574,341	114,278,718	.....	72.59	625,247	45,892,652	.....	73.40
1892-95...	1,683,294	98,293,624	.....	58.39	597,256	34,651,821	.....	58.02
1865-95...	10,910,603	696,306,881	63.82	60.07	3,348,669	231,297,378	62.07	64.52
1865-67...	642,047	48,414,768	75.41	49.02	191,206	19,032,890	99.54	64.70
1868-74...	2,109,492	149,081,261	70.67	59.79	545,705	44,137,679	80.88	68.42
1875-81...	2,650,676	136,043,728	51.32	48.86	682,344	35,920,745	52.64	50.11
1882-88...	2,641,486	178,444,784	.....	67.55	869,196	63,341,609	.....	72.87
1889-95...	2,866,902	184,322,340	.....	64.29	1,060,218	68,864,455	.....	64.95
1865.....	209,136	15,841,009	75.74	35.07	71,702	7,187,561	100.24	46.41
1873.....	343,900	23,343,932	67.88	60.21	84,500	6,589,310	77.98	69.17
1896.....	417,582	14,521,752	.....	34.78	131,297	4,740,134	.....	36.10

Percentages a 11.88, b 8.85.

Percentages a 23.75, b 2.72.

## VIRGINIA.

1865-67...	172,547	\$12,565,008	72.82	54.11	28,710	\$2,494,576	86.89	64.56
1868-71...	765,109	63,676,120	83.23	66.92	118,644	12,685,878	106.92	85.96
1872-75...	749,800	57,681,774	76.93	69.08	118,200	12,429,994	105.16	94.43
1876-79...	806,900	50,181,945	62.19	59.20	121,400	9,215,996	75.91	72.27
1880-83...	883,197	54,765,172	.....	62.01	129,848	10,102,847	.....	77.81
1884-87...	927,601	66,424,547	.....	71.61	138,058	12,058,634	.....	87.34
1888-91...	993,363	70,699,926	.....	71.17	144,336	12,645,692	.....	87.61
1892-95...	2,727,428	206,598,931	.....	75.75	152,774	11,429,118	.....	74.81
1865-95...	6,298,172	436,939,519	60.38	65.66	951,970	83,062,735	87.25	82.19
1865-67...	172,547	12,565,008	72.82	54.11	28,710	2,494,576	86.89	64.56
1868-74...	1,323,809	107,556,652	81.25	68.74	207,044	22,219,014	107.31	90.78
1875-81...	1,438,703	89,654,158	62.32	59.33	213,112	16,413,422	77.02	73.32
1882-88...	1,613,414	112,768,384	.....	69.89	241,720	20,982,043	.....	86.80
1889-95...	1,749,699	114,395,317	.....	65.38	261,384	20,953,680	.....	80.16
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	185,600	15,139,392	81.57	72.35	29,400	3,213,420	109.30	96.95
1896.....	246,046	9,808,229	.....	39.86	38,248	2,134,133	.....	55.80

Percentages a 6.86, b 9.87.

Percentages a 6.75, b 1.49.

## GEORGIA.

1865-67...	71,924	\$6,338,022	88.12	65.47	63,065	\$6,619,595	104.96	77.99
1868-71...	368,757	39,004,908	105.77	85.04	308,558	40,169,167	130.18	104.66
1872-75...	465,600	45,172,409	97.02	87.12	368,000	43,341,801	117.78	105.77
1876-79...	474,100	33,686,956	71.05	67.64	385,800	30,963,604	80.26	76.41
1880-83...	439,205	31,521,486	.....	71.77	463,388	40,206,147	.....	86.77
1884-87...	423,207	34,873,736	.....	82.40	574,059	55,106,150	.....	95.99
1888-91...	450,110	37,734,058	.....	83.83	615,258	59,546,922	.....	96.78
1892-95...	422,272	30,258,274	.....	71.66	637,708	54,338,796	.....	85.21
1865-95...	3,115,175	258,589,849	83.01	78.44	3,415,836	330,292,182	96.69	91.09



TABLE XVI. (a).—Continued.

## GEORGIA—Continued.

YEARS.	HORSES.				MULES.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency.	Gold.			Currency.	Gold.
1865-67...	71,924	6,338,022	88.12	65.47	63,065	6,619,595	104.96	77.99
1868-74...	717,157	73,528,525	102.53	86.74	584,858	73,546,846	125.75	106.38
1875-81...	832,084	61,145,284	73.48	69.95	674,882	57,382,197	85.03	80.95
1882-88...	731,688	58,789,185	.....	80.35	989,719	93,265,243	.....	94.24
1889-95...	762,322	58,788,833	.....	77.12	1,103,312	99,478,301	.....	90.16
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	117,300	12,293,040	104.80	92.96	92,700	11,734,893	126.59	112.29
1896.....	109,185	5,775,859	.....	52.90	166,040	11,207,968	.....	67.50

Percentages a 3.40, b 3.64.

Percentages a 24.22, b 3.99.

## TEXAS.

1865-67...	269,680	\$9,094,825	33.72	25.05	66,183	\$3,268,241	49.38	36.69
1868-71...	1,793,024	59,673,364	33.28	26.76	297,061	14,523,573	48.89	39.31
1872-75...	2,731,700	96,572,446	35.35	31.74	378,500	19,775,743	52.25	46.92
1876-79...	3,199,200	89,773,352	28.06	26.71	563,800	25,008,577	45.95	43.74
1880-83...	3,684,959	111,126,301	.....	30.16	676,056	31,841,752	.....	47.10
1884-87...	3,860,257	141,905,474	.....	36.76	674,715	37,494,489	.....	55.57
1888-91...	5,412,399	176,229,328	.....	32.56	830,878	44,542,140	.....	53.61
1892-95...	4,835,742	131,615,566	.....	27.22	987,283	44,726,392	.....	45.30
1865-95...	25,786,961	815,990,656	31.64	20.93	4,474,476	222,080,907	49.63	47.25
1865-67...	269,680	9,094,825	33.72	25.05	66,183	3,268,241	49.38	36.69
1868-74...	3,804,724	132,788,210	34.90	29.53	573,961	29,494,652	51.39	43.48
1875-81...	5,885,556	161,427,880	27.43	26.11	1,058,860	47,746,545	45.09	42.93
1882-88...	6,804,663	242,949,982	.....	35.70	1,150,799	62,335,191	.....	54.17
1889-95...	9,022,338	269,729,759	.....	29.90	1,624,673	79,236,278	.....	48.77
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	672,300	25,150,743	37.41	33.18	92,200	5,209,300	56.50	51.00
1896.....	1,183,777	24,528,683	.....	20.72	264,069	9,125,296	.....	34.56

Percentages a 28.09, b 7.57.

Percentages a 31.72, b 1.31.

## CALIFORNIA.

1865-67...	.....	\$30,926,126	.....	46.20	75,619	\$5,196,982	.....	68.70
1868-71...	669,434	40,486,754	.....	44.23	91,700	6,010,168	.....	65.54
1872-75...	915,300	42,533,972	.....	42.33	97,000	6,747,515	.....	69.56
1876-79...	1,004,900	49,865,988	.....	48.15	110,376	7,638,338	.....	69.20
1880-83...	1,035,644	67,861,352	.....	62.64	129,151	10,532,300	.....	81.55
1884-87...	1,083,280	95,532,077	.....	67.87	166,051	13,531,179	.....	81.49
1888-91...	1,408,409	93,799,941	.....	47.83	240,671	14,622,618	.....	60.76
1892-95...	1,961,155	.....	.....	.....	.....	.....	.....	.....
1865-95...	8,078,122	421,056,210	.....	52.12	910,598	64,279,100	.....	70.59
1865-67...	.....	.....	.....	.....	.....	.....	.....	.....
1868-74...	1,354,634	61,838,419	.....	45.65	144,149	9,664,582	.....	67.05
1875-81...	1,789,990	77,413,583	.....	43.25	171,600	11,793,764	.....	68.73
1882-88...	1,870,938	114,219,445	.....	61.05	226,951	17,968,346	.....	79.17
1889-95...	3,062,560	167,584,763	.....	54.72	367,898	24,852,408	.....	67.55
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	250,000	11,037,500	.....	44.15	367,800	34,202,737	.....	92.91
1896.....	482,818	13,114,254	.....	27.16	59,251	2,074,789	.....	35.02

Percentages a 8.80, b 4.22.

Percentages a 6.46, b 0.48.

TABLE XVI. (b).

An exhibit by states for various years and periods of years, from 1865 to 1896, inclusive, of the total number of milch cows and oxen on the farms of the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency and their average value in currency and gold.

## NEW YORK.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency	Gold.			Currency.	Gold.
1865-67...	3,782,094	\$198,084,364	52.37	34.04	2,193,764	\$82,318,444	37.52	24.39
1868-71...	5,724,684	290,700,449	52.35	42.09	2,903,698	126,732,423	43.65	35.09
1872-75...	5,742,200	203,313,556	35.41	31.80	2,756,200	90,302,400	32.76	29.42
1876-79...	5,872,800	188,706,456	32.13	30.59	2,712,000	79,558,864	29.34	27.93
1880-83...	5,811,290	182,084,146	.....	31.33	3,005,962	88,912,168	.....	28.72
1884-87...	6,057,523	197,252,764	.....	32.56	3,491,356	121,009,904	.....	34.66
1888-91...	6,181,648	178,426,724	.....	28.86	3,261,013	96,635,908	.....	29.63
1892-95...	6,269,701	165,999,585	.....	26.48	2,921,702	75,286,457	.....	25.77
1865-95...	45,441,940	1,613,568,044	35.51	32.03	23,335,695	760,756,568	32.60	30.97
1865-67...	3,782,094	198,084,364	52.37	34.04	2,193,764	82,318,444	37.52	24.39
1868-71...	9,999,884	448,001,505	44.80	37.90	4,989,998	194,271,621	38.93	32.93
1875-81...	10,203,200	523,493,280	31.71	30.19	4,699,042	134,853,534	28.70	27.32
1882-88...	10,545,466	346,534,203	.....	32.86	6,121,304	204,555,207	.....	33.42
1889-95...	10,911,296	297,454,692	.....	27.26	5,331,587	144,757,762	.....	27.15
1865.....	1,220,200	54,067,062	44.31	20.52	726,412	24,082,276	33.15	15.35
1873.....	1,439,400	48,939,600	34.00	30.16	704,800	23,998,440	34.05	30.20
1896.....	1,445,232	35,119,138	.....	24.30	597,428	13,813,491	.....	23.12

Percentages a 37.08, b 24.66.

Percentages a 10.03, b 12.66.

## PENNSYLVANIA.

1865-67...	1,968,156	\$90,789,619	46.13	29.98	2,080,053	\$66,831,572	34.05	22.13
1868-71...	2,841,770	131,884,928	46.41	37.31	2,914,480	107,091,545	36.74	29.54
1872-75...	3,227,000	115,551,220	35.81	32.16	2,883,500	83,570,523	28.98	26.02
1876-79...	3,347,500	103,022,930	30.78	29.30	2,790,000	72,905,111	26.13	24.88
1880-83...	3,390,471	101,555,535	.....	29.95	3,046,861	80,461,112	.....	26.41
1884-87...	3,590,821	116,410,913	.....	32.42	3,477,521	100,722,304	.....	28.96
1888-91...	3,717,299	103,065,936	.....	27.73	3,424,208	83,105,709	.....	24.27
1892-95...	3,744,237	94,645,207	.....	25.28	3,052,867	66,091,481	.....	21.65
1865-95...	25,827,254	856,926,288	33.18	30.30	23,669,490	660,779,357	27.92	25.53
1865-67...	1,968,156	90,789,619	46.13	29.98	2,080,053	66,831,572	34.05	22.13
1868-74...	5,239,970	218,080,052	41.62	35.21	5,075,380	170,205,262	33.54	28.37
1875-81...	5,841,333	176,420,906	30.20	28.75	4,798,625	122,358,483	25.50	24.28
1882-88...	6,245,630	200,504,579	.....	32.10	6,105,416	174,806,956	.....	28.63
1889-95...	6,532,165	171,131,132	.....	26.20	5,610,016	126,577,084	.....	22.56
1865.....	655,397	25,704,470	39.22	18.16	693,351	19,835,478	28.60	13.24
1873.....	790,700	28,282,850	35.50	31.49	715,500	21,558,015	30.13	26.73
1896.....	947,766	22,954,893	.....	24.22	610,776	12,642,879	.....	20.70

Percentages a 21.07, b 16.71.

Percentages a 10.17, b 15.30.

## STATISTICS OF LABOR.

TABLE XVI. (b).—Continued.

## KENTUCKY.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Cur- rency	Gold.			Cur- rency.	Gold.
1865-67...	484,672	\$21,200,612	43.74	28.43	1,137,319	\$34,798,577	30.60	19.89
1868-71...	749,412	27,985,790	37.34	30.02	1,478,039	42,886,502	29.02	23.33
1872-75...	910,700	26,333,565	28.92	25.97	1,522,600	36,244,752	23.80	21.37
1876-79...	1,001,000	26,824,384	26.80	25.51	1,712,500	34,722,407	20.28	19.31
1880-83...	1,140,565	29,923,750	.....	26.24	1,893,261	41,299,149	.....	21.81
1884-87...	1,228,052	37,201,015	.....	30.29	2,066,198	51,284,032	.....	24.82
1888-91...	1,262,092	28,700,630	.....	22.74	2,058,356	39,135,814	.....	19.01
1892-95...	1,283,340	26,471,748	.....	20.63	2,060,853	33,398,300	.....	16.21
1865-95...	8,059,833	224,641,494	27.87	25.89	13,929,128	313,769,533	23.53	20.89
1865-67...	484,672	21,200,612	43.74	28.43	1,137,319	34,798,577	30.60	19.18
1868-74...	1,437,612	48,425,330	33.68	28.49	2,643,139	71,101,804	26.90	22.76
1875-81...	1,763,500	45,732,409	25.93	24.69	2,949,937	59,816,507	20.28	19.31
1882-88...	2,142,570	61,739,823	.....	28.82	3,608,540	86,756,207	.....	24.04
1889-95...	2,231,479	47,543,320	.....	21.39	3,590,193	61,296,438	.....	17.07
1865.....	172,346	7,288,512	42.29	19.58	361,627	10,886,792	30.10	13.94
1873.....	229,400	6,911,822	30.13	26.83	384,300	9,230,886	24.02	21.31
1896.....	303,682	6,189,039	.....	20.39	506,997	8,786,669	.....	17.33

Percentages a 6.58, b 6.54.

Percentages a 5.98, b 11.29.

## VIRGINIA.

1865-67...	260,698	\$7,745,337	29.71	22.07	282,424	\$4,824,615	17.08	12.69
1868-71...	1,017,276	29,465,255	28.96	23.28	1,257,421	25,602,107	20.36	16.37
1872-75...	931,300	21,785,822	23.39	21.00	1,614,600	26,973,496	16.71	15.01
1876-79...	935,000	19,567,458	20.93	19.93	1,653,200	26,369,356	15.95	15.18
1880-83...	969,590	19,356,704	.....	19.96	1,733,261	30,491,442	.....	17.59
1884-87...	996,208	22,842,718	.....	22.93	1,721,116	33,726,116	.....	19.60
1888-91...	1,066,388	22,148,151	.....	20.77	1,682,330	28,151,735	.....	16.73
1892-95...	1,110,131	21,839,274	.....	19.67	1,632,032	25,723,854	.....	15.76
1865-95...	7,286,591	164,750,719	22.61	21.11	11,576,384	201,862,721	17.44	16.55
1865-67...	260,698	7,745,337	29.71	22.07	282,424	4,824,615	17.08	12.69
1868-74...	1,719,276	45,990,935	26.75	22.63	2,474,521	46,406,403	18.75	15.86
1875-81...	1,647,906	34,043,181	20.66	19.67	2,912,900	46,549,306	15.98	15.21
1882-88...	1,739,985	38,526,391	.....	22.14	3,015,938	57,567,533	.....	19.09
1889-95...	1,918,726	38,444,875	.....	20.04	2,890,601	46,514,864	.....	16.09
1865.....	.....	5,543,460	23.69	21.08	405,700	6,844,159	16.87	14.96
1873.....	234,000	4,818,619	.....	18.14	386,675	6,138,896	.....	15.88
1896.....	265,635	.....	.....	.....	.....	.....	.....	.....

Percentages a 5.95, b 11.43.

Percentages a 4.97, b 18.14.

## GEORGIA.

1865-67...	245,033	\$5,302,514	21.64	16.08	338,378	\$3,575,974	10.57	7.85
1868-71...	1,014,837	22,204,281	21.88	17.59	1,484,337	17,278,838	11.64	9.36
1872-75...	1,032,200	20,679,568	20.03	17.99	1,601,000	16,269,636	10.16	9.12
1876-79...	1,081,700	17,209,812	15.91	15.15	1,615,600	14,115,615	8.74	8.32
1880-83...	1,185,830	17,971,006	.....	15.15	2,006,262	18,508,876	.....	9.23
1884-87...	1,364,122	24,720,971	.....	18.12	2,437,136	25,772,239	.....	10.57
1888-91...	1,384,272	24,106,205	.....	17.41	2,335,355	25,527,598	.....	10.93
1892-95...	1,324,431	22,624,976	.....	17.08	2,236,614	20,679,988	.....	9.25
1865-95...	8,632,425	154,819,333	17.93	16.97	14,054,682	141,728,764	10.08	9.61



TABLE XVI. (b).—Continued.

## GEORGIA—Continued.

YEARS.	MILCH COWS.				OXEN AND OTHER CATTLE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency	Gold.			Currency.	Gold.
1865-67...	245,033	5,302,514	21.64	16.08	338,378	3,575,974	10.57	7.85
1868-74...	1,789,637	38,081,859	21.25	17.98	2,692,237	29,782,576	11.06	9.36
1875-81...	1,885,300	29,705,871	15.76	15.00	2,818,316	24,322,209	8.63	8.22
1882-88...	2,341,355	40,787,159	.....	17.42	4,232,438	44,429,349	.....	10.50
1889-95...	2,371,100	40,991,930	.....	17.29	3,973,313	39,618,656	.....	9.97
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	257,400	5,644,782	21.93	19.45	401,300	4,410,287	10.99	9.74
1896.....	312,711	5,300,451	.....	16.95	540,916	4,926,936	.....	9.11

Percentages a 7.04, b 10.07.

Percentages a 6.04, b 16.40.

## TEXAS.

1865-67...	653,410	\$7,318,197	11.20	8.32	2,458,065	\$13,754,042	5.60	4.16
1868-71...	2,459,968	26,358,016	10.71	8.61	11,224,648	69,576,567	6.20	4.98
1872-75...	2,221,600	31,196,958	14.04	12.61	10,748,800	83,943,784	7.81	7.01
1876-79...	2,069,700	31,224,760	14.87	14.16	13,992,500	133,297,919	9.52	9.07
1880-83...	2,393,965	41,722,792	.....	17.43	16,390,024	188,211,621	.....	11.48
1884-87...	2,805,173	59,052,545	.....	21.05	18,570,566	267,277,582	.....	14.39
1888-91...	3,294,639	46,243,875	.....	14.04	27,625,737	254,723,892	.....	9.22
1892-95...	3,310,608	47,220,330	.....	14.26	26,143,263	242,375,642	.....	9.27
1865-95...	19,239,063	290,337,473	15.09	13.90	127,153,003	1,253,161,049	9.85	9.37
1865-67...	653,410	7,318,197	11.20	8.32	2,458,065	13,754,042	5.60	4.16
1868-74...	4,155,068	50,536,729	12.16	10.29	19,606,048	135,764,851	6.92	5.85
1875-81...	3,758,800	54,099,405	14.39	13.70	24,896,140	232,026,975	9.32	8.87
1882-88...	4,839,254	95,891,504	.....	19.82	32,760,854	437,593,640	.....	13.36
1889-95...	5,832,531	82,491,638	.....	14.14	47,432,496	434,021,541	.....	9.15
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	566,200	7,643,700	13.50	11.57	2,842,200	21,344,922	7.51	6.66
1896.....	783,936	14,024,615	.....	17.89	5,518,644	69,520,010	.....	12.60

Percentages a 15.69, b 5.64.

Percentages a 54.63, b 37.32.

## CALIFORNIA.

1865-67...	.....	.....	.....	.....	.....	.....	.....	.....
1868-71...	751,118	\$36,109,386	.....	48.07	1,363,112	\$36,613,700	.....	26.13
1872-75...	1,107,300	41,970,328	.....	37.90	1,996,600	41,980,590	.....	21.03
1876-79...	1,594,800	46,045,789	.....	28.87	4,139,300	75,132,704	.....	18.15
1880-83...	1,375,360	43,312,952	.....	31.49	2,997,233	63,815,484	.....	21.19
1884-87...	932,298	34,556,698	.....	37.07	2,512,304	68,070,855	.....	27.09
1888-91...	1,059,756	32,014,975	.....	30.21	2,675,196	49,889,056	.....	18.65
1889-95...	1,257,955	32,544,962	.....	25.87	3,361,218	55,138,445	.....	16.40
1865-95...	8,078,587	266,555,090	.....	33.00	19,044,963	390,639,434	.....	20.57
1865-67...	.....	.....	.....	.....	.....	.....	.....	.....
1868-74...	1,518,418	67,135,114	.....	44.21	2,699,712	\$66,107,000	.....	24.49
1875-81...	2,881,600	85,545,877	.....	29.69	6,799,100	126,436,022	.....	18.60
1882-88...	1,611,631	57,589,671	.....	35.73	4,202,004	107,262,668	.....	25.53
1889-95...	2,066,938	56,284,428	.....	27.23	5,344,147	90,833,654	.....	17.00
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	270,000	11,728,800	.....	43.44	442,200	10,042,362	.....	22.71
1896.....	335,646	7,971,593	.....	23.75	888,832	14,057,319	.....	15.82

Percentages a 6.59, b 4.22.

Percentages a 8.18, b 9.99.



## STATISTICS OF LABOR.

TABLE XVI. (c).

An exhibit by states for various years and periods of years, from 1865 to 1896, inclusive, of the total number of sheep and swine on the farms of the seven States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency and their average value in currency and gold.

## NEW YORK.

YEARS.	SHEEP.				SWINE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency.	Gold.			Currency.	Gold.
1865-67...	15,066,463	\$75,402,464	5.00	3.25	2,064,107	\$27,830,062	13.48	8.76
1868-71...	15,674,253	48,874,596	3.12	2.51	2,955,714	33,612,256	11.37	9.14
1872-75...	8,193,100	31,680,694	3.87	3.48	2,588,000	21,373,167	8.26	7.42
1876-79...	7,473,300	26,430,761	3.54	3.37	3,098,700	25,901,743	8.36	7.96
1880-83...	8,008,612	29,231,708	...	3.65	3,381,187	30,751,536	...	9.09
1884-87...	6,605,707	22,302,780	...	3.38	2,896,050	23,599,964	...	8.15
1888-91...	6,054,502	21,350,819	...	3.53	2,724,832	21,106,195	...	7.75
1892-95...	5,398,594	17,541,126	...	3.25	2,635,496	21,754,850	...	8.26
1865-95...	72,474,531	272,814,948	3.76	3.21	22,344,086	205,929,773	9.22	8.30
1865-67...	15,066,463	75,402,464	5.00	3.25	2,064,107	27,830,062	13.48	8.76
1868-74...	21,870,953	73,028,862	3.34	2.83	4,957,414	49,210,368	9.93	8.40
1875-81...	14,013,648	50,179,083	3.58	3.41	5,585,080	45,908,023	8.22	7.83
1882-88...	11,634,438	40,728,176	...	3.50	5,063,547	35,923,359	...	9.07
1889-95...	9,889,029	33,476,363	...	3.39	4,673,938	37,057,961	...	7.92
1865.....	4,576,310	25,226,910	5.51	2.55	699,983	9,890,762	14.13	6.54
1873.....	2,100,300	9,031,290	4.30	3.81	671,700	5,581,827	8.31	7.37
1896.....	899,179	2,137,798	...	2.38	645,433	4,193,897	...	6.50

Percentages a 16.82, b 39.33.

Percentages a 8.88, b 12.12.

## PENNSYLVANIA.

1865-67...	9,558,511	\$46,115,222	4.82	3.13	2,746,596	\$29,384,838	10.70	6.96
1868-71...	11,080,983	32,102,808	2.90	2.33	4,037,962	42,113,131	10.43	8.39
1872-75...	6,713,300	23,348,923	3.48	3.13	4,154,100	32,148,749	7.74	6.95
1876-79...	6,521,700	20,917,906	3.21	3.06	3,641,200	31,522,298	8.66	8.24
1880-83...	6,870,924	22,759,902	...	3.31	4,007,826	35,179,551	...	8.78
1884-87...	5,519,891	16,449,969	...	2.98	4,380,898	35,583,307	...	8.12
1888-91...	3,905,041	12,670,204	...	3.24	4,416,057	33,583,679	...	7.60
1892-95...	5,380,982	17,061,058	...	3.17	4,280,557	34,761,326	...	8.12
1865-95...	55,550,432	191,425,992	3.45	2.98	31,665,196	274,276,879	8.66	7.92
1865-67...	9,558,511	46,115,222	4.82	3.13	2,746,596	29,384,838	10.70	6.96
1868-74...	16,119,383	49,391,851	3.06	2.50	7,261,162	65,139,060	8.97	7.59
1875-81...	11,477,807	37,281,458	...	3.25	6,390,500	53,292,090	8.34	7.94
1882-88...	10,093,599	31,662,518	...	3.14	7,597,801	66,370,634	...	8.74
1889-95...	8,301,132	26,975,143	...	3.25	7,669,137	60,090,257	...	7.84
1865.....	2,871,503	16,166,561	5.62	2.60	820,728	10,048,006	12.11	5.61
1873.....	1,691,000	6,222,880	3.68	3.26	1,088,900	8,841,868	8.12	7.20
1896.....	907,672	1,957,667	...	2.16	1,033,104	6,464,234	...	6.26

Percentages a 12.89, b 35.93.

Percentages a 12.59, b 20.48.

TABLE XVI. (c).—Continued.

## KENTUCKY.

YEARS.	SHEEP.					SWINE.				
	Number.	Value in Currency.	Average Value.			Number.	Value in Currency.	Average Value.		
			Currency	Gold.				Currency.	Gold.	
1865-67...	2,610,661	\$10,644,208	4.08	2.65	5,281,124	\$33,056,765	6.26	4.07		
1868-71...	3,611,154	9,331,454	2.58	2.07	7,242,827	36,772,668	5.08	4.08		
1872-75...	3,260,400	8,905,219	2.73	2.45	7,942,200	29,056,233	3.66	3.29		
1876-79...	3,294,000	8,607,876	2.61	2.48	7,112,000	31,906,750	4.49	4.27		
1880-83...	4,021,231	10,906,708	.....	2.71	7,404,033	32,605,783	.....	4.40		
1884-87...	3,692,212	9,129,095	.....	2.47	7,848,325	33,301,549	.....	4.24		
1888-91...	3,175,633	8,573,252	.....	2.70	8,421,195	35,105,934	.....	4.17		
1892-95...	4,220,560	11,264,210	.....	2.67	7,897,501	35,340,965	.....	4.48		
1865-95...	27,885,851	77,362,022	2.78	2.53	59,149,035	267,146,642	4.52	4.17		
1865-67...	2,610,661	10,644,208	4.08	2.65	5,281,124	33,056,760	6.26	4.07		
1868-74...	6,111,954	16,049,025	2.63	2.22	13,478,227	57,141,289	4.24	3.59		
1875-81...	6,084,396	16,229,526	2.67	2.54	12,370,300	53,215,952	4.30	4.09		
1882-88...	6,480,645	16,538,542	.....	2.55	13,419,031	60,615,469	.....	4.52		
1889-95...	6,598,195	17,900,721	.....	2.71	14,600,353	63,117,172	.....	4.32		
1865.....	813,400	4,494,035	5.52	2.36	1,602,284	11,031,725	6.88	3.19		
1873.....	824,600	2,383,094	2.89	2.56	2,113,700	6,742,703	3.19	2.83		
1896.....	858,366	1,603,257	.....	1.87	1,688,594	6,053,946	.....	3.59		

Percentages a 6.47, b 22.62.

Percentages a 23.52, b 47.98.

## VIRGINIA.

1867.....	700,666	\$1,793,705	2.56	1.90	1,055,945	\$5,570,424	5.28	3.92		
1868-71...	2,203,185	5,432,042	2.47	1.99	3,556,264	17,727,258	4.98	4.00		
1872-75...	1,508,800	4,381,706	2.90	2.60	3,044,900	11,266,303	3.70	3.32		
1876-79...	1,563,200	4,087,620	2.61	2.48	2,670,000	10,382,470	3.89	3.70		
1880-83...	1,878,029	4,769,033	.....	2.54	3,306,263	14,487,550	.....	4.38		
1884-87...	1,877,004	4,577,836	.....	2.44	3,278,969	13,343,142	.....	4.07		
1888-91...	1,769,713	4,598,093	.....	2.60	3,617,883	14,015,953	.....	3.87		
1892-95...	1,885,198	5,088,888	.....	2.70	3,776,459	15,470,346	.....	4.10		
1867-95...	13,385,795	34,726,023	2.59	2.43	24,306,683	102,263,446	4.21	3.94		
1867.....	700,666	1,793,705	2.56	1.90	1,055,945	5,570,424	5.28	3.92		
1868-74...	3,344,485	8,718,598	2.61	2.21	5,938,464	26,276,491	4.42	3.74		
1875-81...	2,804,205	7,332,018	2.61	2.48	4,975,600	19,258,534	3.87	3.68		
1882-88...	3,326,269	8,272,774	.....	2.49	5,753,694	25,193,011	.....	4.38		
1889-95...	3,210,170	8,608,928	.....	2.68	6,582,980	25,964,986	.....	3.94		
1865.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	386,900	1,176,176	3.04	2.70	816,600	3,004,262	3.67	3.26		
1896.....	426,889	894,760	.....	2.10	985,748	3,768,514	.....	3.82		

Percentages a 3.10, b 20.98.

Percentages a 9.66, b 38.09.

## GEORGIA.

1867.....	346,017	649,831	1.88	1.40	1,596,536	\$6,921,479	4.34	3.22		
1868-71...	1,152,208	1,920,287	1.67	1.34	5,532,153	22,919,157	4.14	3.33		
1872-75...	1,122,900	1,788,744	1.59	1.43	6,097,200	19,614,448	3.22	2.89		
1876-79...	1,506,500	2,432,337	1.61	1.53	6,050,700	20,612,167	3.41	3.25		
1880-83...	1,823,445	2,745,088	.....	1.51	6,225,917	21,670,194	.....	3.48		
1884-87...	2,042,108	2,999,265	.....	1.47	6,265,030	20,671,278	.....	3.30		
1888-91...	1,661,720	2,589,027	.....	1.56	6,321,466	21,029,750	.....	3.33		
1892-95...	1,629,941	2,623,379	.....	1.61	7,092,096	25,924,047	.....	3.66		
1867-95...	11,284,839	17,747,958	1.57	1.41	45,181,098	159,362,520	3.53	3.32		

TABLE XVI. (c).—Continued.

## GEORGIA—Continued.

YEARS.	SHEEP.				SWINE.			
	Number.	Value in Currency.	Average Value.		Number.	Value in Currency.	Average Value.	
			Currency	Gold.			Currency.	Gold.
1867.....	346,017	649,831	1.88	1.40	1,596,536	6,921,479	4.34	3.22
1868-74....	1,900,108	3,101,531	1.63	1.38	10,117,453	37,029,575	3.66	3.10
1875-81....	2,634,044	4,157,533	1.58	1.50	10,949,040	36,443,323	3.33	3.17
1882-88....	3,555,283	5,291,483	.....	1.49	10,638,696	36,873,429	.....	3.47
1889-95....	2,849,387	4,547,585	.....	1.59	11,879,373	42,094,714	.....	3.52
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	253,500	410,670	1.62	1.41	1,559,400	4,678,200	3.00	2.66
1896.....	378,769	519,368	.....	1.37	1,954,241	6,931,302	.....	3.55

Percentages a 2.62, b 13.17.

Percentages a 17.96, b 52.73.

## TEXAS.

1867.....	940,195	\$2,026,120	2.15	1.60	1,312,556	\$3,429,052	2.61	1.94
1868-71....	3,973,673	6,301,117	1.59	1.28	4,320,890	10,510,914	2.43	1.95
1872-75....	5,263,600	9,595,390	1.82	1.63	4,800,600	13,436,614	2.80	2.51
1876-79....	12,752,800	25,037,391	1.96	1.87	5,908,200	21,168,599	3.58	3.41
1880-83....	25,809,528	55,369,913	.....	2.14	7,709,189	25,134,054	.....	3.26
1884-87....	27,079,182	51,862,795	.....	1.92	9,188,906	29,560,277	.....	3.22
1888-91....	18,926,102	28,455,367	.....	1.50	9,132,284	29,762,215	.....	3.26
1892-95....	16,927,248	24,349,561	.....	1.44	9,955,504	38,446,266	.....	3.86
1867-95....	111,762,328	202,997,654	1.82	1.78	52,322,129	141,447,991	3.28	3.17
1867.....	940,195	2,026,120	2.15	1.60	1,312,556	3,429,052	2.61	1.94
1868-74....	7,791,573	13,120,763	1.68	1.42	7,974,099	20,792,178	2.61	2.21
1875-81....	25,370,528	49,892,048	1.97	1.88	10,909,300	35,331,706	3.24	3.08
1882-88....	46,330,421	92,018,569	.....	1.99	15,317,477	50,122,702	.....	3.27
1889-95....	31,329,611	45,823,816	.....	1.46	16,808,706	61,298,777	.....	3.65
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	1,239,600	2,231,250	1.80	1.60	1,233,800	3,578,020	2.90	2.57
1896.....	3,065,256	3,839,540	.....	1.25	3,035,119	10,896,078	.....	3.59

Percentages a 25.94, b 32.80.

Percentages a 20.80, b 15.36.

## CALIFORNIA.

1865-67....	.....	.....	.....	.....	.....	.....	.....	.....
1868-71....	9,586,400	\$23,984,012	.....	2.50	1,638,007	\$8,447,078	.....	5.16
1872-75....	17,041,500	44,763,998	.....	2.63	1,720,200	9,928,558	.....	5.77
1876-79....	27,490,000	44,905,010	.....	1.63	1,784,500	11,305,746	.....	6.34
1880-83....	27,400,688	47,542,267	.....	1.74	2,770,043	15,690,405	.....	5.66
1884-87....	24,235,371	44,612,884	.....	1.84	3,973,745	19,162,248	.....	4.82
1888-91....	17,166,158	34,311,874	.....	2.00	2,859,442	14,351,300	.....	5.02
1892-95....	15,652,415	32,335,367	.....	2.07	1,835,721	10,317,939	.....	5.62
1865-95....	138,572,532	272,455,412	.....	1.97	16,581,658	89,203,274	.....	5.38
1865-67....	.....	.....	.....	.....	.....	.....	.....	.....
1868-74....	21,944,700	56,899,514	.....	2.59	2,954,507	16,046,287	.....	5.43
1875-81....	47,313,864	81,680,891	.....	1.73	3,516,800	19,583,913	.....	5.57
1882-88....	41,958,123	77,319,545	.....	1.84	6,463,030	33,739,835	.....	5.22
1889-95....	27,655,845	56,355,462	.....	2.06	3,647,321	19,833,239	.....	5.44
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	4,002,800	11,888,316	.....	2.97	427,300	2,610,803	.....	6.11
1896.....	2,962,126	5,483,784	.....	1.85	507,461	2,045,677	.....	4.03

Percentages a 32.16, b 72.45.

Percentages a 6.59, b 8.67.







TABLE XVI. (d).—Continued.

## KENTUCKY.

## TEXAS.

YEARS.	Horses.	Mules.	Sheep.	Swine.	Milch Cows.	Oxen.	Horses.	Mules.	Sheep.	Swine.	Milch Cows.	Oxen.
1865-67 ..	81	94	104	144	106	93	75	72	100	75	72	62
1868-71 ..	99	99	81	144	112	109	81	77	80	76	74	75
1872-75 ..	97	94	96	116	97	100	96	92	102	98	109	105
1876-79 ..	80	69	97	151	95	91	81	86	117	133	122	136
1880-83 ..	93	91	106	155	98	102	91	92	134	127	151	172
1884-87 ..	114	107	96	150	113	112	111	109	120	125	182	216
1888-91 ..	121	106	105	147	85	89	98	105	94	127	121	138
1892-95 ..	97	84	104	158	77	76	82	89	90	150	123	139
1865-95 ..	100	93	99	147	94	98	90	93	111	120	120	141
1865-67 ..	81	94	104	144	106	93	75	72	100	75	72	62
1868-74 ..	99	99	87	127	106	107	89	85	89	86	89	88
1875-81 ..	81	72	99	145	92	91	79	84	118	120	118	133
1882-88 ..	112	105	100	160	107	113	108	106	124	127	171	201
1889-95 ..	107	94	106	153	80	80	90	96	91	142	122	137
1865 .....	58	67	92	113	73	65	.....	.....	.....	.....	.....	189
1896 .....	58	52	73	127	76	81	62	68	78	140	155	.....
1873 .....	100	100	100	100	100	100	100	100	100	100	100	100

## CALIFORNIA.

1865-67.....	.....	.....	.....	.....	.....	.....
1868-71.....	106	74	84	84	111	129
1872-75.....	100	71	89	94	87	104
1876-79.....	96	75	55	104	66	90
1880-83.....	109	74	59	93	72	105
1884-87.....	142	88	62	79	85	134
1888-91.....	154	88	67	82	70	92
1892-95.....	108	65	70	92	60	81
1865-95.....	118	76	66	88	76	102
1865-67.....	.....	.....	.....	.....	.....	.....
1868-74.....	103	72	87	89	102	121
1875-81.....	98	74	58	91	68	92
1882-88.....	138	85	62	85	82	126
1889-95.....	124	73	69	89	63	84
1865.....	.....	.....	.....	.....	.....	.....
1896.....	62	100	62	66	100	78
1873.....	100	38	100	100	55	100

TABLE XVI. (e).

Summaries by states for certain years and periods of years, from 1865 to 1896, inclusive, of the total number of horses, mules, cows, oxen, sheep, and swine on the farms of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency and their simple and corrected average values in currency and gold and index numbers calculated by different methods.

## NEW YORK.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS		
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'ge Six An'ls.
						(1)	(2)	
1865-67.....	24,567,275	499,128,846	23.17	13.21	19.55	53	81	85
1868-71.....	29,446,411	730,756,392	24.81	19.95	26.07	79	109	104
1872-75.....	21,998,800	611,360,959	27.61	24.96	24.01	100	100	97
1876-79.....	22,378,700	583,144,484	26.06	24.81	22.07	99	92	92
1880-83.....	23,376,457	573,032,729	.....	24.51	22.73	90	95	97
1884-87.....	21,643,732	615,612,734	.....	28.45	25.63	114	107	104
1888-91.....	20,912,048	574,804,132	.....	27.49	23.84	110	99	98
1892-95.....	19,972,560	488,826,204	.....	24.48	20.60	98	86	87
1865-95.....	184,295,983	4,676,666,480	25.16	23.30	23.30	93	97	98
1865-67.....	24,567,275	499,128,846	20.17	13.21	19.55	53	81	85
1868-74.....	46,041,311	1,189,111,250	25.83	21.83	25.17	87	105	101
1875-81.....	40,237,323	1,016,534,117	25.26	24.03	21.70	96	91	91
1882-88.....	37,886,332	1,059,534,574	.....	27.97	25.18	112	105	105
1889-95.....	35,563,742	912,357,693	.....	25.65	21.89	102	91	97
1865.....	7,633,400	149,450,081	19.58	9.06	13.34	35	55	60
1873.....	5,594,600	157,666,097	28.18	24.96	23.90	100	100	100
1896.....	3,245,991	86,788,143	.....	26.75	16.19	106	67	69

Percentage b 16.11.

## PENNSYLVANIA.

1865-67.....	17,575,793	345,649,058	19.66	12.78	17.84	56	78	83
1868-71.....	22,806,501	515,864,354	22.62	18.18	21.84	80	95	100
1872-75.....	19,301,100	485,435,114	25.15	22.59	22.24	100	97	98
1876-79.....	18,808,300	417,316,476	22.19	21.12	19.80	93	86	91
1880-83.....	19,697,066	421,431,585	.....	21.40	20.86	94	91	97
1884-87.....	19,357,641	498,934,702	.....	25.78	23.23	114	106	103
1888-91.....	17,932,394	464,543,730	.....	23.91	21.96	114	96	97
1892-95.....	19,146,028	398,455,930	.....	20.81	18.33	92	80	83
1865-95.....	154,624,823	3,547,630,949	22.94	21.06	21.06	92	92	95
1865-67.....	17,575,793	345,649,058	19.66	12.78	17.84	56	78	83
1868-74.....	37,352,001	879,495,770	23.55	19.91	22.86	88	100	98
1875-81.....	32,867,018	723,391,846	22.01	20.95	19.71	92	86	91
1882-88.....	34,179,502	854,702,785	.....	25.01	23.34	110	102	103
1889-95.....	32,650,509	744,391,490	.....	22.80	19.78	100	87	91
1865.....	5,442,753	105,862,161	19.45	19.00	12.50	84	55	59
1873.....	4,873,100	124,054,187	25.46	22.58	22.72	100	100	100
1896.....	4,143,343	74,866,295	.....	17.83	10.09	78	44	69

Percentage b 13.52.

## STATISTICS OF LABOR.

TABLE XVI. (e).—Continued.

## KENTUCKY.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS		
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'age Six An'als.
						(1)	(2)	
1865-67.....	10,347,029	167,147,815	16.16	12.00	12.76	112	95	104
1868-71.....	14,459,829	222,458,428	15.39	12.37	14.17	116	106	107
1872-75.....	15,344,400	214,225,498	13.96	12.54	13.19	117	99	100
1876-79.....	15,022,900	198,104,128	13.19	12.55	12.91	117	90	97
1880-83.....	16,425,896	227,673,513	.....	13.86	13.56	129	102	106
1884-87.....	16,823,565	269,806,900	.....	16.04	15.45	150	116	115
1888-91.....	17,116,864	271,687,000	.....	15.87	14.67	148	110	109
1892-95.....	17,742,636	239,420,668	.....	13.49	12.66	126	95	99
1865-95.....	123,283,119	1,810,523,950	14.69	13.70	13.70	128	102	105
1865-67.....	10,347,029	167,147,815	16.16	12.00	12.76	112	95	104
1868-71.....	26,326,153	385,936,388	14.66	12.42	13.80	116	103	104
1872-75.....	26,501,153	346,958,867	13.09	12.49	12.00	116	90	97
1882-88.....	29,161,444	467,436,434	.....	16.03	15.30	149	114	116
1889-95.....	30,947,340	443,044,446	.....	14.32	13.46	133	101	103
1865.....	3,230,495	56,729,634	17.56	8.13	8.33	76	62	78
1873.....	4,580,400	55,201,747	12.05	10.69	13.31	100	100	100
1896.....	3,906,518	41,894,837	.....	10.72	9.49	100	71	78

Percentage b 10.78.

## VIRGINIA.

1865-67.....	2,500,990	34,993,665	14.00	10.40	13.02	69	84	87
1868-71.....	8,917,899	154,588,660	17.34	13.94	15.48	93	100	100
1872-75.....	7,967,600	134,519,095	16.88	15.16	15.16	101	98	98
1876-79.....	7,749,700	119,804,845	15.46	13.43	13.88	89	89	93
1880-83.....	8,900,188	133,969,748	.....	15.05	14.95	100	95	101
1884-87.....	8,938,956	152,973,093	.....	17.11	16.61	114	107	107
1888-91.....	9,274,013	152,259,550	.....	16.42	15.81	109	102	102
1892-95.....	9,556,249	140,496,507	.....	14.70	14.37	98	93	98
1865-95.....	63,805,595	1,023,605,163	16.03	15.12	15.12	100	98	100
1865-67.....	2,500,990	34,993,665	14.00	10.40	13.02	69	84	87
1868-71.....	15,007,599	257,168,093	17.14	14.51	15.49	99	100	100
1875-81.....	13,992,426	123,250,619	15.24	14.51	13.88	99	90	93
1882-88.....	15,691,020	263,310,136	.....	16.78	17.38	111	112	108
1889-95.....	16,613,560	254,882,650	.....	15.34	15.67	102	101	99
1865.....	2,060,200	34,920,869	16.96	15.00	15.52	100	100	100
1873.....	2,349,241	27,563,151	.....	11.73	11.61	78	75	83

Percentage b 5.58.

## GEORGIA.

1865-67.....	2,660,953	29,407,415	11.05	8.21	10.28	64	78	87
1868-71.....	9,860,850	143,496,638	14.55	11.90	12.45	91	95	98
1872-75.....	10,686,900	146,866,606	13.74	12.34	12.41	95	95	97
1876-79.....	11,114,400	119,020,491	10.71	10.19	10.32	78	79	89
1880-83.....	12,144,047	132,622,797	.....	10.92	11.14	84	85	94
1884-87.....	13,105,662	164,143,639	.....	12.52	14.06	96	108	100
1888-91.....	12,768,181	170,533,560	.....	13.36	12.43	103	95	102
1892-95.....	13,343,062	156,449,460	.....	11.73	17.39	91	133	98
1865-95.....	85,684,055	1,062,540,606	12.40	11.74	11.74	91	90	94

TABLE XVI. (e).—Continued.

## GEORGIA—Continued.

YEARS.	Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS		
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'age Six An'als
						(1)	(2)	
1865-67.....	2,660,953	29,407,415	11.05	8.21	10.28	64	78	87
1868-74.....	17,801,450	255,020,912	14.32	11.89	12.57	91	96	98
1875-81.....	19,793,666	213,156,517	10.77	10.10	10.51	78	80	89
1882-88.....	22,489,179	279,435,848	.....	12.43	12.19	95	93	100
1889-95.....	22,938,807	285,519,914	.....	12.44	11.85	96	91	99
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	2,681,000	39,171,872	14.60	12.95	13.01	100	100	100
1896.....	3,461,862	34,661,884	.....	10.01	7.45	77	57	88

Percentage b 7.49.

## TEXAS.

1865-67.....	5,700,089	38,890,477	6.82	5.07	5.22	58	73	76
1868-71.....	24,069,264	186,943,551	7.77	6.24	5.61	72	79	77
1872-75.....	26,144,800	254,520,935	9.74	8.74	7.26	101	102	100
1876-79.....	38,516,200	326,410,598	8.47	8.03	7.90	93	111	113
1880-83.....	56,747,721	453,406,433	.....	7.99	9.36	93	132	118
1884-87.....	62,178,799	587,153,162	.....	9.77	11.19	113	158	171
1888-91.....	65,222,039	579,956,817	.....	8.88	8.38	103	118	114
1892-95.....	62,159,648	528,733,757	.....	8.51	7.97	99	112	112
1865-95.....	340,738,560	2,956,015,730	8.68	8.42	8.42	98	118	112
1865-67.....	5,700,089	38,890,477	6.82	5.07	5.22	58	73	76
1868-74.....	43,905,464	382,497,382	8.70	7.36	6.38	85	90	88
1875-81.....	71,879,184	580,524,559	8.07	7.67	7.71	89	108	109
1882-88.....	107,203,468	980,911,588	.....	9.15	10.67	106	150	139
1889-95.....	112,050,355	973,191,723	.....	8.68	8.15	100	115	113
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	6,646,300	65,157,965	9.82	8.60	7.08	100	100	100
1896.....	13,850,801	131,934,222	.....	9.53	8.69	110	122	115

Percentage 29.79.

## CALIFORNIA.

1865-67.....	.....	.....	.....	.....	.....	.....	.....	.....
1868-71.....	14,083,720	141,277,284	.....	10.03	9.31	111	103	102
1872-75.....	22,872,600	185,140,396	.....	8.10	8.28	89	92	94
1876-79.....	36,110,500	226,670,736	.....	6.28	6.98	69	78	84
1880-83.....	35,689,344	227,863,434	.....	6.38	7.56	70	84	89
1884-87.....	32,866,149	244,796,337	.....	7.45	9.04	82	101	102
1888-91.....	25,335,012	239,681,061	.....	9.46	8.27	104	92	95
1892-95.....	24,309,135	238,759,272	.....	9.82	7.01	108	78	82
1865-95.....	191,266,460	1,504,188,520	.....	7.86	7.86	100	88	91
1865-67.....	.....	.....	.....	.....	.....	.....	.....	.....
1868-74.....	30,616,120	277,691,006	.....	9.07	8.90	100	99	99
1875-81.....	62,472,954	402,654,050	.....	6.44	6.99	71	78	83
1882-88.....	56,332,677	408,099,510	.....	7.24	8.79	79	98	100
1889-95.....	41,844,709	415,743,954	.....	9.93	7.40	109	83	87
1865.....	.....	.....	.....	.....	.....	.....	.....	.....
1873.....	5,417,300	49,084,281	.....	9.06	8.97	100	100	100
1896.....	5,230,134	44,747,416	.....	8.55	7.15	94	79	62

Percentage b 16.73.



TABLE XVI. (F).

Summaries by animals for certain years and periods of years, from 1865 to 1896, inclusive, of the total number of horses, mules, cows, oxen, sheep, and swine on the farms of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency and their simple and corrected average values in currency and gold and index numbers calculated by different methods.

## HORSES.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.			
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'rge Seven- teen States.	According to Relative Importance
						(1)	(2)		
1865-67.....	3,794,562	299,508,037	78.94	53.34	43.20	78	66	70	66
1868-71.....	8,694,592	684,643,728	78.75	63.98	59.86	94	91	93	91
1872-75.....	11,104,700	803,171,129	72.33	65.33	63.34	96	96	96	96
1876-79.....	12,549,900	728,813,173	58.71	55.45	54.43	87	83	82	82
1880-83.....	12,916,243	745,263,216	.....	57.70	57.60	85	88	89	88
1884-87.....	12,672,206	882,981,129	.....	69.68	71.13	103	108	109	108
1888-91.....	14,880,941	971,453,295	.....	65.29	70.24	96	107	110	107
1892-95.....	15,185,265	796,405,700	.....	52.45	55.07	77	84	87	84
1865-95.....	91,798,409	5,912,239,407	64.40	60.80	60.80	89	93	95	92
1865-67.....	3,794,562	299,508,037	78.94	53.34	43.20	78	66	70	66
1868-71.....	16,950,692	1,295,807,211	76.45	65.53	62.05	97	94	95	95
1875-81.....	22,413,298	1,295,875,017	57.82	55.47	54.34	82	83	86	82
1882-88.....	22,119,560	1,488,928,168	.....	67.31	68.93	99	105	106	105
1889-95.....	26,520,297	1,532,120,974	.....	57.77	61.36	85	93	96	94
1865.....	1,000,187	83,861,842	83.86	38.83	.....	57	.....	49	44
1873.....	2,774,500	210,549,007	75.89	67.76	65.73	100	100	100	100
1896.....	3,700,969	127,624,494	.....	34.48	36.33	51	56	57	56

Percentage b 8.03.

## MULES.

1865-67.....	394,124	36,341,207	92.24	65.69	59.68	79	75	71	75
1868-71.....	1,200,309	111,203,014	92.67	75.36	71.51	91	90	88	90
1872-75.....	1,465,100	127,492,530	87.03	78.57	74.51	94	93	93	94
1876-79.....	1,736,400	107,736,346	62.06	57.54	59.08	69	74	76	72
1880-83.....	1,933,626	128,271,594	.....	66.36	67.12	80	84	83	84
1884-87.....	2,108,506	163,382,293	.....	77.50	77.50	93	96	98	96
1888-91.....	2,499,293	188,632,085	.....	75.48	76.56	91	96	95	96
1892-95.....	2,766,997	172,416,521	.....	62.33	63.70	75	80	78	80
1865-95.....	14,104,355	1,035,475,590	73.42	69.40	69.40	84	87	86	87
1865-67.....	394,124	36,341,207	92.24	65.69	59.68	79	75	71	75
1868-71.....	2,294,069	209,327,068	91.25	77.37	73.93	93	93	91	92
1875-81.....	3,079,615	195,205,395	63.39	60.41	60.78	73	76	77	76
1882-88.....	3,679,647	279,287,971	.....	73.18	75.83	88	95	95	94
1889-95.....	4,656,960	315,313,949	.....	67.79	69.04	82	87	87	88
1865.....	83,920	8,544,054	101.81	47.02	.....	57	.....	52	62
1873.....	367,800	34,202,737	92.99	83.03	79.78	100	100	100	100
1896.....	700,088	31,777,100	.....	45.39	46.20	54	58	55	58

Percentage 1.23

TABLE XVI. (f).—Continued.

## COWS.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.			
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'rge Seven- teen States.	According to Relative Importance
						(1)	(2)		
1865-67.....	7,394,063	330,440,643	44.69	29.59	27.73	109	104	95	105
1868-71.....	14,559,065	573,708,105	32.54	32.16	32.60	118	123	124	124
1872-75.....	15,172,300	460,831,017	35.37	27.56	27.28	101	103	100	102
1876-79.....	15,932,500	432,601,589	27.15	25.99	25.57	95	96	94	96
1880-83.....	16,267,071	435,926,885	.....	26.90	26.73	99	100	100	99
1884-87.....	16,974,197	492,037,624	.....	28.99	29.27	106	110	115	111
1888-91.....	17,966,094	434,706,496	.....	24.20	24.70	89	92	94	93
1892-95.....	18,300,402	411,346,082	.....	22.48	22.82	84	86	88	86
1865-95.....	122,565,693	3,571,598,441	29.14	26.86	26.86	99	101	99	101
1865-67.....	7,394,063	330,440,643	44.69	29.59	27.73	109	104	95	105
1868-74.....	25,859,865	916,201,524	35.43	30.27	30.48	111	115	107	117
1875-81.....	27,981,639	749,040,929	26.79	25.58	25.21	94	95	93	94
1882-88.....	29,465,891	841,573,330	.....	28.56	28.76	105	108	111	109
1889-95.....	31,864,235	734,342,015	.....	23.05	23.45	85	90	95	89
1865.....	2,047,943	87,060,044	42.50	20.00	.....	73	.....	66	66
1873.....	3,787,109	114,695,014	30.29	27.26	26.58	100	100	100	100
1896.....	4,394,608	96,378,348	.....	21.93	22.11	81	83	89	84

Percentage b 10.72.

## OXEN.

1865-67.....	8,490,003	206,103,224	24.28	15.23	11.40	102	83	81	82
1868-71.....	22,625,735	425,781,682	18.87	15.44	14.16	104	103	106	105
1872-75.....	23,123,300	379,285,181	16.40	14.91	13.73	100	100	100	100
1876-79.....	28,613,106	436,101,976	15.21	14.60	14.16	98	103	98	102
1880-83.....	31,162,864	511,697,852	.....	16.42	16.31	111	118	112	119
1884-87.....	34,276,197	667,863,032	.....	19.19	19.59	129	141	132	143
1888-91.....	43,062,195	577,170,312	.....	13.40	14.96	90	108	104	111
1892-95.....	41,408,551	518,694,167	.....	12.52	13.80	84	100	95	103
1865-95.....	232,763,945	3,722,697,426	15.99	15.16	15.16	102	110	107	111
1865-67.....	8,490,003	206,103,224	24.28	15.23	11.40	102	83	81	82
1868-74.....	40,181,035	713,639,607	17.76	15.31	14.11	103	103	105	104
1875-81.....	49,874,060	746,363,036	14.96	14.38	13.99	97	101	98	101
1882-88.....	60,046,494	1,112,971,560	.....	18.54	18.67	125	135	128	136
1889-95.....	74,172,353	943,619,999	.....	12.72	13.82	86	100	97	106
1865.....	1,781,390	52,704,429	29.59	13.69	.....	92	.....	55	50
1873.....	5,896,000	97,429,071	16.51	14.85	13.85	100	100	100	100
1896.....	9,050,268	129,886,206	.....	14.37	14.98	96	108	100	117

Percentage b 20.35.

TABLE XVI. (f).—Continued.

## SHEEP.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.			
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'rge Seven- teen States.	According to Relative Importance.
						(1)	(2)		
1865-67.....	29,222,513	136,631,550	4.68	3.09	2.73	105	100	92	99
1868-71.....	47,280,956	127,946,316	2.68	2.28	2.09	78	73	78	73
1872-75.....	43,103,600	124,464,674	2.89	2.70	2.53	92	93	96	92
1876-79.....	60,601,500	132,418,901	2.19	2.12	2.25	72	83	93	77
1880-83.....	75,902,457	173,321,619	.....	2.28	2.45	77	90	99	89
1884-87.....	71,051,475	151,934,724	.....	2.14	2.32	73	85	93	86
1888-91.....	52,658,869	112,548,636	.....	2.14	2.34	73	85	95	85
1892-95.....	51,094,938	110,263,589	.....	2.11	2.29	72	84	94	85
1865-95.....	430,916,308	1,069,530,009	2.48	2.30	2.30	78	85	91	85
1865-67.....	29,222,513	136,631,550	4.68	3.09	2.73	105	100	92	99
1868-71.....	79,083,156	220,310,144	2.94	2.47	2.26	84	84	84	81
1875-81.....	109,698,492	246,952,557	2.25	2.18	2.30	74	84	94	80
1882-88.....	123,378,778	271,831,407	.....	2.20	2.38	74	87	96	89
1889-95.....	89,533,369	193,804,351	.....	2.16	2.33	73	85	95	86
1865.....	8,261,213	45,887,506	5.55	2.58	.....	85	.....	80	73
1873.....	10,498,700	33,343,706	3.18	2.95	2.72	100	100	100	100
1896.....	9,497,257	16,436,174	.....	1.73	1.82	59	67	73	69

Percentage b 37.68.

## SWINE.

1865-67.....	14,056,864	106,192,615	7.55	5.23	4.31	131	109	113	121
1868-71.....	29,283,817	172,102,462	5.88	4.74	4.56	119	116	113	118
1872-75.....	30,347,200	136,824,072	4.48	4.08	4.05	102	102	103	103
1876-79.....	30,265,300	152,799,773	5.05	4.82	4.82	121	122	121	121
1880-83.....	34,798,458	175,519,073	.....	5.04	5.05	126	127	126	126
1884-87.....	37,831,923	175,221,765	.....	4.36	4.72	109	119	118	117
1888-91.....	37,493,159	168,955,026	.....	4.51	4.61	113	116	116	116
1892-95.....	37,473,164	182,015,739	.....	4.86	5.04	122	125	127	119
1865-95.....	251,549,885	1,269,630,525	5.05	4.71	4.71	118	119	118	119
1865-67.....	14,056,864	106,192,615	7.55	5.23	4.31	131	109	113	121
1868-71.....	52,681,317	271,635,248	5.16	4.40	4.28	110	109	108	110
1875-81.....	54,696,620	263,033,541	4.81	4.59	4.59	115	116	115	116
1882-88.....	64,253,276	318,838,439	.....	4.96	5.04	124	126	126	122
1889-95.....	65,861,808	309,930,682	.....	4.71	4.84	121	123	122	124
1865.....	1,529,711	19,938,768	12.31	6.36	.....	63	.....	93	60
1873.....	7,911,400	35,037,683	4.43	3.97	3.96	100	100	100	100
1896.....	9,849,700	40,353,648	.....	4.10	4.23	105	107	108	111

Percentage b 21.99.

TABLE XVI. (g).

A summary by years and certain periods of years, from 1865 to 1896, inclusive, of the horses, mules, cows, oxen, sheep, and swine on the farms of the States of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency, and the simple and corrected average values in gold and currency, and index numbers calculated by different methods.

## ALL LIVE STOCK.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.				
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'ge Six Ani- mals.	According to Relative Im- portance.	
						(1)	(2)		(1)	(2)
1865-67....	63,352,129	1,115,217,276	17.60	11.63	11.48	77	83	72	85	93
1868-71....	123,644,474	2,095,385,307	16.95	13.85	12.85	91	93	85	101	105
1872-75....	124,316,200	2,032,068,603	16.35	14.83	13.56	98	98	82	98	100
1876-79....	149,700,700	1,990,471,758	13.30	12.71	12.73	84	92	79	90	98
1880-83....	172,980,719	2,170,000,239	.....	12.54	13.68	83	99	82	99	109
1884-87....	174,914,504	2,553,420,567	.....	14.48	15.70	95	114	95	114	121
1888-91....	168,560,551	2,453,465,850	.....	14.56	14.16	96	102	86	104	107
1892-95....	166,229,318	2,191,141,798	.....	13.18	12.45	87	90	79	91	101
1865-95....	1,143,698,595	16,581,171,398	14.50	13.59	13.60	90	98	84	99	105
1865-67....	63,352,129	1,115,217,276	17.60	11.63	11.48	77	83	72	85	93
1868-74....	217,050,074	3,626,920,802	16.71	14.34	13.82	95	100	84	101	103
1875-81....	267,743,724	3,496,470,475	13.06	12.52	12.54	83	91	78	90	97
1882-88....	302,943,646	4,313,430,875	.....	14.24	15.36	94	111	94	112	119
1889-95....	292,609,022	4,029,131,970	.....	13.77	13.04	91	94	83	96	103
1865.....	16,306,648	313,041,876	19.20	8.86	.....	59	.....	54	59	.....
1873.....	31,235,500	525,257,218	16.82	15.09	13.82	100	100	100	100	100
1896.....	37,192,890	442,455,964	.....	11.90	10.55	79	76	68	78	86

- (1) With numbers and values of live stock as reported by Agricultural Department.  
 (2) With numbers and values in reduced proportions as explained in report.



## CHAPTER XVII.

## PRICES FOR LIVE STOCK IN SEVENTEEN STATES AND THE NATION.

## HORSES.

The movement of average farm values for live stock in the United States as that for crops may, as was explained in Chapter XIV., be sought from the data of this report in two ways. The student may examine the simple average values for the nation by themselves, or in connection with the simple and corrected values for the seventeen states which in thirty-three years have possessed seventy-three per cent of the farm animals of the nation. Both sets of figures must be taken as only approximate exhibits of that price movement. The character and meaning of both must be taken into consideration in forming a satisfactory conclusion concerning the actual movement of average prices for live stock in the United States. The simple average gold farm values for horses in the nation, and simple and corrected average values for the seventeen states by seven-year periods, and the per capita number of horses for the nation given in the tables of this chapter, are summarized here as follows:

YEARS.	Simple Average Gold Value for Nation.	AVERAGE GOLD VALUES IN SEVENTEEN STATES.		Per Capita Number of Horses.
		Simple Values.	Correc'd Values	
1865-67.....	\$53.09	\$52.22	\$49.06	.....
1868-74.....	65.13	62.62	60.02	.208
1875-81.....	56.69	55.61	55.08	.227
1882-88.....	70.57	70.87	71.39	.213
1889-95.....	59.16	59.92	61.70	.235

By comparing the price movement shown by either set of figures with the changing per capita number of horses in the United States, it is seen that advancing prices have always led to an increase in the relative and actual number of that animal found

upon the farms of the United States. Falling prices have also led to a decrease in those numbers. High prices have always been associated with a low per capita number, and the reverse. This is true of the long periods of times, but not of single years.

The fluctuations by seven-year periods have, in thirty-three years, been only twenty-seven horses in a thousand of people, the lowest average having been 208 horses for every thousand people in the nation, and the highest 235. At the present time, with very low prices, there is a decrease in the breeding of horses, and Jan. 1, 1896, these horses were only 217 for every thousand inhabitants. With the relative stock of horses as shown by the per capita number reduced very low at the present time, we can reasonably look for a great relative advance in values, such as has always come in the United States after a similar reduction in numbers.

By comparing the simple and corrected average farm values for horses in the seventeen states it is seen that there is quite a wide variation in the earlier and later periods. In the first the older states raised the larger number of all kinds of live stock for the market. This condition is reversed at present. This fact reduces the average of the corrected values in the first period and raises that of the last above the simple average values for horses as shown in the foregoing summary. The average gold value for thirty-three years was for the nation \$62.19 and for the seventeen states \$61.80. The seventeen states thus included a larger relative proportion of cheap horses, such as those of Texas, than did the nation. The difference, however, is only trifling. The fact of that greater relative number of cheap horses in the seventeen states causes more difference between the simple and corrected values in that group than would be found in the nation if the latter had been calculated. The data for the nation and for the seventeen states agree in showing an upward trend of values from the three-year period beginning with 1865 when compared with the seven-year period ending with 1894. The prices for horses and all other live stock doubtless experienced the general upward movement from 1862 to 1867, shown by the nine crops. The government figures for live stock do not go back of 1865. The live stock tables do not, therefore, in the earliest period, reflect the average for the same years as do the tables for crops. They contain an exhibit of the latter half of that first period and the half with the higher prices. If allowance is made for this fact, we note the existence of a greater relative advance in the price of horses than is shown in the tables. The index numbers calculated for the corrected average values of horses agree very closely with those calculated according to rela-

tive importance. They differ much from those which are the average of the index numbers for horses in the seventeen individual states. A summary for the three sets of index numbers by seven-year periods is as follows:

YEARS.	INDEX NUMBERS.		
	To Corrected Average Values	According to Relative Importance.	Average of Seventeen States.
1865-67.....	78	77	70
1868-74.....	98	95	95
1875-81.....	88	88	82
1882-88.....	115	116	106
1889-95.....	99	99	94

The last set of index numbers magnify the advance in average prices. Such numbers when combining such varieties of price movements as are found in this group of seventeen states for horses are poor measures of actual average price movements. They are given in this report more to bring out that fact than to furnish a measure of testing the average trend of farm prices in the United States.

#### MULES.

The simple average values for mules in the United States, and simple and corrected values for the seventeen states, and their per capita numbers by seven-year periods were as follows:

YEARS.	Average Gold Values for Nation.	AVERAGE GOLD VALUES IN SEVENTEEN STATES.		Per Capita Number of Mules.
		Simple Values.	Corrected Values.	
1865-67.....	\$65.16	\$64.09	\$61.43	.....
1868-74.....	82.35	73.44	71.20	.030
1875-81.....	64.42	59.78	60.06	.034
1882-88.....	79.46	77.46	77.28	.036
1889-95.....	70.05	66.12	66.99	.036

The relative number of mules in the United States steadily increased until after the era of very high prices was reached, about 1884, since which time it has decreased. The prices of mules varied with that of horses, and bears no relation to their own changing relative numbers. Mules show about the same relative difference in simple and corrected average values as horses, and for the same reasons. The index numbers for mules, by the three methods of calculation above referred to, are as follows:

YEARS.	INDEX NUMBERS.		
	To Corrected Average Values.	According to Relative Importance.	Average Seventeen States.
1865-67 .....	82	89	70
1868-74 .....	95	97	91
1875-81 .....	81	82	77
1882-88 .....	103	106	95
1889-95 .....	89	91	86

The difference in the first period between the first two sets of numbers is due to the small relative number of mules in that period reported from the states with low average prices.

## MILCH COWS.

The simple and corrected average farm gold values of cows in the United States and in the seventeen selected states are summarized as follows:

YEARS.	Simple Average Values in Nation.	AVERAGE VALUES IN SEVENTEEN STATES.		Per Capita Number of Cows in Nation.
		Simple Averages.	Corrected Averages.	
1865-67.....	\$26.79	\$26.31	\$25.09	.....
1868-74.....	28.87	29.73	29.39	.257
1875-81.....	24.48	24.96	24.74	.249
1882-88.....	27.85	28.96	29.68	.252
1889-95.....	22.07	22.42	22.78	.252

The relative number of cows in the nation has continued fairly stable, although with the decrease in price of dairy products and of cows in the past few years there has come a slight decrease, and in January, 1896, there was only 231 for every one thousand inhabitants, when the average for thirty-three years has been 252. This fact would indicate the probability of a great advance in the average value of cows and of all dairy products so soon as business revives, as it always does after such a period of financial depression as now exists. The index numbers for cows calculated by three different methods are as follows, by seven-year periods:

YEARS.	INDEX NUMBERS.		
	To Corrected Average Values.	According to Relative Importance.	Average Seventeen States.
1865-67 .....	93	98	96
1868-74 .....	113	111	106
1875-81 .....	92	93	92
1882-88 .....	110	111	111
1889-95 .....	85	86	95



## OXEN AND OTHER CATTLE

have had a price movement somewhat different from that of milch cows. So far as that movement is expressed by simple and corrected average values, the same is presented in the following summary for the nation and seventeen states:

YEARS.	Simple Average Values in Nation.	AVERAGE VALUES IN SEVENTEEN STATES.		Per Capita Number in Nation.
		Simple Averages.	• Corrected Averages.	
1865-67.....	\$16.31	\$16.18	\$13.74	.....
1868-74.....	18.05	18.29	17.78	.386
1875-81.....	16.45	16.80	16.86	.412
1882-88.....	20.96	21.83	21.79	.544
1889-95.....	15.16	15.66	16.25	.565

The average gold value of all oxen and other cattle in the nation for thirty-three years was \$17.53, and for the seventeen states it was \$18.00. The nation had, therefore, a little more of cheap cattle than the seventeen states. The variation was relatively small, only about three per cent. The corrected averages and index numbers, according to relative importance calculated for seventeen states, are, therefore, fairly representative for the nation as well. The index numbers for the nation were by seven-year periods as follows:

YEARS.	INDEX NUMBERS.		
	To Corrected Average Values.	According to Relative Importance.	Average Seventeen States.
1865-67 .....	79	80	80
1868-74 .....	102	103	104
1875-81 .....	96	96	97
1882-88 .....	125	124	127
1889-95 .....	92	94	98

With oxen the general evenness for most periods of the price movement causes the index numbers, which are the mean of the numbers of seventeen states, to approximate those by the other two methods, excepting for one period.

## SHEEP

were very high when the Agricultural Department made up its figures for the calendar year of 1865, or the years included by the department in its reports for January, 1866. The next year there was a great decline in the average farm values of sheep. From that date (the year 1867) there has been a general rise of

sheep prices until the panic of 1893. This rise is shown by the following summary for the nation and the seventeen states by seven-year periods:

YEARS.	Simple Average Values in Nation.	AVERAGE VALUES IN SEVENTEEN STATES.		Per Capita Number in Nation.
		Simple Averages.	Corrected Averages.	
1865-67.....	\$2.73	\$2.77	\$2.66	.....
1868-74.....	2.11	2.14	2.10	.914
1875-81.....	2.26	2.28	2.35	.812
1882-88.....	2.20	2.33	2.46	.863
1889-95.....	2.24	2.44	2.34	.691

The relative number of sheep in the nation has greatly decreased since 1865. It has continued to decrease until the present time. Jan. 1, 1896, it was only 549 sheep for every one thousand people, while for the years 1868 to 1871 it was 1,000, or nearly twice as great. The average value for thirty-three years in the nation was for sheep \$2.25 in gold, while for the seventeen states it was \$2.36. There was, therefore, relatively a small number more of cheap sheep in the nation than in the seventeen states. The variation, however, is so small that it still leaves those states a very good practical measure of the actual price movement for sheep in the nation. The index numbers for sheep by the three methods of calculation give the following relative exhibit for the seventeen states by seven-year periods:

YEARS.	INDEX NUMBERS.		
	To Corrected Average Values.	According to Relative Importance.	Average Seventeen States.
1865-67.....	101	98	92
1868-74.....	80	79	84
1875-81.....	81	87	93
1882-88.....	87	93	95
1889-95.....	91	99	94

The shifting of the sheep industry from one set of states to another, with relatively different farm values, accounts for the different price movement shown by the first and second sets of numbers.

#### SWINE.

The simple and corrected average farm gold values for the swine of the nation and of the seventeen states by seven-year periods are as follows:

YEARS.	Simple Average Values in Nation.	AVERAGE VALUES IN SEVENTEEN STATES.		Per Capita Number of Swine in Nation.
		Simple Averages.	Corrected Averages.	
1865-67.....	\$4.62	\$4.75	\$4.47	.....
1868-74.....	4.39	4.56	4.56	.734
1875-81.....	4.72	5.07	5.07	.675
1882-88.....	5.27	5.65	5.65	.811
1889-95.....	5.24	5.63	5.62	.759

The average gold value in the nation in thirty-three years has been \$4.96, and in the seventeen states \$5.29. The nation has, therefore, more cheap hogs relatively; and hence its corrected values, if obtained, would show a greater variation from the simple averages than do those for the seventeen states. The figures for the nation and the seventeen states alike indicate an advance since 1865 in average farm gold values. The index numbers by three different calculations for swine are as follows for the seventeen states:

YEARS.	INDEX NUMBERS.		
	To Corrected Average Values.	According to Relative Importance.	Average of Seventeen States.
1865-67 .....	119	124	112
1868-74 .....	122	123	107
1875-81 .....	135	136	115
1882-88 .....	150	149	125
1889-95 .....	149	149	122

## ALL LIVE STOCK.

The simple and corrected average values for the nation and for the seventeen states were for all live stock by seven-year periods as follows:

YEARS.	AVERAGE VALUES FOR SEVENTEEN STATES.		AVERAGE VALUES FOR NATION.	
	Simple Averages.	Corrected Averages.	Simple Averages.	Corrected Averages.
1865-67.....	\$10.30	\$12.35	\$10.59	\$13.33
1868-74.....	13.50	14.57	14.07	14.84
1875-81.....	13.80	13.51	13.66	13.29
1882-88.....	16.43	16.80	15.63	15.99
1889-95.....	15.32	14.10	14.22	13.25

Comparing the first and last seven-year periods the simple averages for the nation show an advance of nearly forty per cent, and the corrected averages a decline of eight cents, or six-tenths

of one per cent. But the corrected values for the nation contained in Table (e), and summarized above, do not take account in the least of the change in the relative number of different animals raised in states near and remote from market at different periods. This allowance is found in the corrected average values for seventeen states. The average for all animals in the nation was for thirty-three years \$14.26 in gold. The corresponding average for seventeen states was \$14.60. There was, therefore, but little practical difference. The detailed information about live stock prices found in the tables for seventeen states may be relied upon as exhibiting the real movement of average prices in the nation.

The figures for the seventeen states, with the calculation for all the changes in the farm ownership of live stock in new and old states, show a marked advance in average values when comparing the earlier and later years. That average advance is substantially the same as for the nine crops raised in the same states. The similarity and difference in the price movement of live stock and farm crops for thirty-three years may be noted in the following summary by seven-year periods of the index numbers for corrected values and those calculated according to relative importance:

YEARS.	INDEX NUMBERS FOR			
	NINE CROPS.		ALL LIVE STOCK.	
	To Corrected Average Values.	According to Relative Importance.	To Corrected Average Values.	According to Relative Importance.
1862-66.....	97	88	87	89
1867-73.....	112	108	102	103
1874-80.....	97	96	95	95
1881-87.....	100	101	118	122
1888-94.....	94	94	99	101

The foregoing figures for live stock are obtained by combining the live stock in the relative proportion shown by the reports of the United States Department of Agriculture.

But attention has been called in preceding chapters to the need of combining the values of live stock in other proportions that may more fully express the relative importance of the several animals in the annual sales of farm products. The proportions used are the full values of swine, one-half those of fat cattle and oxen, one-third for sheep, one-fifth for cows, and one-eighth for horses and mules. Combining the live stock in this proportion, we have the following comparative exhibit of the price movements of the nine crops and



of the live stock combined, according to relative importance, when using the full reported values and when combining them in the proportions given:

YEARS.	INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.		
	Nine Crops.	ALL LIVE STOCK.	
		When Combined in Proportions Reported.	When Combined in Reduced Proportions.
1862-66 .....	88	89	92
1868-73 .....	108	103	106
1874-80 .....	96	95	103
1881-87 .....	101	122	126
1888-94 .....	94	101	109

The figures which are shown in the last column indicate a greater relative advance in average farm values than those in the one before it. Those figures better represent the effect upon the farmers of changing farm values of live stock. No one exhibit is anything more than approximate. Taken together the figures clearly prove, however, that, when comparing the years 1862 to 1866 with those of 1888 to 1894, the values of live stock in the United States advanced on an average from ten to fifteen per cent. It should be noted, that, in the foregoing table, the dates on the margin are for the periods of crops, and not those shown in the average live stock tables. The differences of one year in methods of reporting crops and live stock admit of combining both in the actual or agricultural year, which is here designated by the names given under crops.

#### DEFECT IN LIVE STOCK FIGURES FROM 1862 TO 1867.

Attention should be called to this fact. The tables for live stock in the first period include only three of the five years included in the corresponding period in the tables for nine crops. The years included are for the last or years of the higher average farm prices. The figures thus given in this report for live stock from 1865 to 1867 are higher than would appear had we the correct ones from 1862 to 1866. They exaggerate the actual prices of those years as those of this report do the values of live stock in the same years, owing to the breaks in the reports for the earlier years to which attention has previously been called. The correct figures for 1862 to 1866 or 1860 to 1866 would for live stock and for all crops show an average price at least five per cent, and possibly

more, lower than those here tabulated. Hence, the actual advance in the average values of live stock from the period of the Civil War to the four or seven years ending with 1894 is at least five per cent greater than the foregoing summary or the tables of this report would indicate.

#### IMPROVED METHODS OF BREEDING AND FEEDING LIVE STOCK

have in thirty years greatly changed the net income of the farmers of the United States from raising animals of various kinds. Thirty years ago the farmer marketed or slaughtered his hogs on an average at twenty-two months of age or thereabouts. To-day the average is not far from fourteen months. No accurate data upon the subject has been collected by anyone, but this is the nearest approximate that has come into the possession of the commissioner in charge of this investigation. In the same way the age at which fat cattle are marketed has been lowered from six, thirty years ago, to less than three at the present time. This change in the age at which hogs and oxen are marketed or slaughtered has its parallel in the improvements made in the breed of dairy cows, by which the average cow to-day produces more milk, butter, and cheese than its predecessor thirty years ago. The exact data, if obtained for all live stock, would show that the farmer's income from the same to-day is by reason of these changes noted, and other similar ones, as much increased over that of thirty years ago as has been the case with the nine great staples with the improved methods of cultivation and improved farm machinery, whose increased product for each male agricultural worker has been shown on pages 396 to 399.

TABLE XVII. (a).

An exhibit by years and certain periods of years, from 1850 to 1896, inclusive, of the total number of horses and mules upon the farms of the United States, together with the total farm value of the same in currency and the average values in currency and gold.

YEARS.	HORSES.				MULES.			
	Total Number.	Total Value in Dollars, Currency.	Average Value.		Total Number.	Total Value in Dollars, Currency.	Average Value.	
			Curr'ncy	Gold.			Curr'ncy	Gold.
1850...	4,336,719				559,331			
1860...	6,249,174				1,151,148			
1865...	3,740,933	302,425,490	80.84	37.43	247,553	25,041,488	101.02	46.75
1866...	3,899,019	326,885,813	83.84	59.86	250,151	25,039,839	100.10	71.47
1867...	5,401,263	429,271,818	79.46	59.05	822,386	76,094,954	92.53	63.75
1868...	5,756,940	432,696,226	75.16	54.27	855,685	66,415,769	77.62	56.04
1869...	6,332,793	533,024,787	84.16	62.05	921,662	98,356,359	106.75	78.67
1870...	8,248,800	671,319,461	81.38	67.06	1,179,500	128,584,796	109.02	89.83
1871...	8,702,000	683,257,587	78.51	70.90	1,242,300	126,127,786	101.53	91.68
1872...	8,990,900	659,707,916	73.37	67.28	1,276,300	121,027,316	94.83	87.74
1873...	9,222,470	634,463,957	74.21	65.83	1,310,000	124,658,083	95.16	84.41
1874...	9,333,800	666,927,406	71.45	64.09	1,339,350	119,501,859	89.22	80.63
1875...	9,504,200	646,370,939	68.01	60.46	1,393,750	111,502,113	80.00	71.12
1876...	9,735,300	632,446,983	64.96	57.56	1,414,500	106,565,114	75.34	66.75
1877...	10,155,400	610,206,631	60.08	56.44	1,443,500	99,430,976	68.92	64.85
1878...	10,329,700	600,813,681	58.16	57.29	1,637,500	104,323,939	63.71	62.75
1879...	10,938,700	573,254,808	52.41	52.41	1,713,100	96,033,971		56.06
1880...	11,201,800	613,296,611	54.75	54.75	1,729,500	105,948,319		61.26
1881...	11,429,626	667,954,323	58.44	58.44	1,720,731	120,096,164		69.79
1882...	10,521,554	615,824,914	58.82	58.82	1,835,166	130,945,378		71.35
1883...	10,838,111	765,041,308	70.59	70.59	1,871,079	148,732,390		79.49
1884...	11,169,683	833,734,400	74.64	74.64	1,914,126	161,214,976		84.22
1885...	11,564,572	852,282,947	73.70	73.70	1,972,569	162,497,097		82.38
1886...	12,077,657	860,823,208	71.27	71.27	2,052,593	163,381,096		79.60
1887...	12,496,744	901,685,755	72.15	72.15	2,117,141	167,067,538		78.91
1888...	13,172,936	946,066,154	71.82	71.82	2,191,727	174,853,563		79.78
1889...	13,663,294	982,194,827	71.89	71.89	2,257,574	179,444,481		79.49
1890...	14,213,837	978,516,562	68.84	68.84	2,331,027	182,394,099		78.25
1891...	14,056,750	941,823,222	67.00	67.00	2,296,532	178,847,370		77.84
1892...	15,498,140	1,007,593,636	65.01	65.01	2,314,699	174,882,070		75.55
1893...	16,206,802	992,225,185	61.22	61.22	2,331,128	164,763,751		70.68
1894...	16,081,139	769,224,799	47.83	47.83	2,352,231	146,232,811		62.17
1895...	15,893,318	576,730,580	36.29	36.29	2,333,108	110,927,834		47.55
1896...	15,124,057	500,140,186	33.07	33.07	2,278,946	103,204,457		45.29
1865-67	13,041,215	1,058,583,130	81.17	53.09	1,320,090	126,176,281	95.58	65.16
1868-71	29,040,533	2,320,298,061	79.90	64.58	4,199,147	419,514,710	99.90	81.04
1872-75	37,051,370	2,657,470,218	71.72	64.37	5,319,400	476,689,373	89.61	80.44
1876-79	41,159,100	2,416,722,103	58.72	55.87	6,208,600	406,404,000	65.46	62.34
1880-83	43,991,091	2,662,117,158	60.51	60.51	7,156,476	505,722,251		70.67
1884-87	47,308,656	3,448,526,310	72.92	72.92	8,056,429	654,150,707		81.20
1888-91	55,106,817	3,848,630,763	69.84	69.84	9,076,866	715,539,513		78.83
1892-95	63,679,399	3,345,774,200	52.54	52.54	9,331,166	596,806,466		63.96
1865-67	13,041,215	1,058,583,130	81.17	53.09	1,320,090	126,176,281	95.58	65.16
1868-74	56,587,703	4,331,397,340	76.54	65.13	8,124,797	784,701,970	96.58	82.35
1875-81	73,294,726	4,344,343,980	59.27	56.69	11,052,581	743,950,596	67.31	64.42
1882-88	81,841,257	5,775,488,686	70.57	70.57	13,954,401	1,108,682,038		79.46
1889-95	105,613,280	6,248,308,811	59.16	59.16	16,216,299	1,137,492,416		70.05
1865-95	330,378,181	21,758,121,947	65.86	62.19	50,668,168	3,901,003,301	76.99	73.28



TABLE XVII. (b).

An exhibit by years and certain periods of years, from 1850 to 1896, inclusive, of the total number of cows and oxen upon the farms of the United States, together with the total farm value of the same in currency and the average values in currency and gold.

YEARS.	Cows.				OXEN.			
	Total Numbers.	Total Value in Dollars. Currency.	Average Value.		Total Number.	Total Value in Dollars. Currency.	Average Value.	
			Cur- r'ncy	Gold.			Cur'ency	Gold.
1850...	6,385,094				11,393,813			
1860...	8,581,735				17,034,284			
1865...	5,768,130	211,718,270	36.70	16.99	7,072,591	185,000,187	26.17	12.12
1866...	5,779,644	275,081,701	47.25	33.74	6,895,324	210,778,136	35.57	21.83
1867...	8,348,773	322,968,141	39.77	28.74	11,730,952	249,351,682	21.55	15.79
1868...	8,691,568	319,681,153	36.78	26.56	11,942,484	249,144,599	20.86	15.06
1869...	9,247,714	361,752,676	39.11	28.83	12,185,385	306,211,473	25.12	18.52
1870...	10,095,600	394,940,745	39.12	32.23	15,388,500	346,926,440	22.54	18.58
1871...	10,023,000	374,179,093	37.33	33.71	16,212,200	369,940,056	22.81	20.61
1872...	10,303,500	329,408,983	31.97	29.32	16,389,800	321,562,693	19.61	17.99
1873...	10,575,900	314,358,931	29.72	26.37	16,413,800	329,298,755	20.06	17.80
1874...	10,705,300	299,609,309	27.99	25.10	16,218,100	310,649,803	19.15	17.18
1875...	10,906,800	311,089,824	28.52	25.36	16,313,400	304,858,859	18.68	16.61
1876...	11,085,400	320,346,728	28.80	25.60	16,785,300	319,623,509	19.04	16.87
1877...	11,260,800	307,743,211	27.32	25.72	17,956,100	307,105,386	17.10	16.09
1878...	11,300,100	298,499,866	26.41	26.02	19,223,300	329,541,703	17.14	16.89
1879...	11,826,400	256,953,928		21.73	21,408,100	329,543,327		15.39
1880...	12,027,000	279,899,420		23.27	21,231,000	341,761,154		16.10
1881...	12,368,653	296,277,060		23.95	20,937,702	362,861,500		17.33
1882...	12,611,632	326,480,310		25.89	22,280,238	463,069,501		19.89
1883...	13,125,685	396,575,405		30.21	28,046,077	611,549,100		21.80
1884...	13,501,206	423,486,649		31.37	29,046,101	683,229,054		23.52
1885...	13,904,722	412,903,093		29.70	29,866,373	694,382,913		23.25
1886...	14,235,388	389,985,523		27.40	31,275,242	661,956,274		21.17
1887...	14,522,083	378,789,589		26.08	33,511,750	663,137,926		19.79
1888...	14,856,414	366,252,173		24.65	34,378,363	611,750,520		17.79
1889...	15,208,625	366,226,376		23.94	35,032,417	597,236,812		17.05
1890...	15,952,883	353,152,133		22.14	36,849,024	560,625,137		15.21
1891...	16,019,591	346,397,900		21.62	36,875,648	544,127,908		14.76
1892...	16,416,351	351,378,132		21.40	37,651,239	570,749,155		15.16
1893...	16,424,087	357,290,785		21.75	35,954,196	547,882,204		15.24
1894...	16,487,400	358,998,661		21.77	36,608,168	536,789,747		14.66
1895...	16,504,629	362,601,729		21.97	34,364,216	482,999,129		14.06
1896...	16,137,586	263,955,545		22.55	32,085,409	508,928,416		15.86
1865-67	19,896,547	807,768,112	40.61	26.79	25,698,867	645,220,005	25.11	16.31
1868-71	38,057,882	1,450,553,667	38.11	30.50	55,728,569	1,272,222,568	22.83	18.38
1872-75	42,491,500	1,254,467,047	29.52	26.50	65,335,100	1,266,370,110	19.38	17.40
1876-79	45,472,700	1,183,543,733	26.03	24.73	75,372,800	1,285,813,925	17.06	16.27
1880-83	50,132,970	1,299,232,195		25.92	93,495,017	1,779,241,273		19.03
1884-87	56,163,399	1,605,164,854		28.57	123,699,666	2,702,706,167		21.85
1888-91	62,127,513	1,432,028,582		23.05	143,135,452	2,313,740,377		16.16
1892-95	65,832,467	1,430,278,307		21.71	144,577,819	2,138,420,235		14.79
1865-67	19,896,547	807,768,112	40.61	26.79	25,698,867	645,220,005	25.11	16.31
1868-74	69,642,582	2,393,930,890	34.37	28.87	104,750,269	2,233,733,819	21.32	18.05
1875-81	80,775,153	2,070,810,037	25.64	24.48	133,854,902	2,295,295,447	17.15	16.45
1882-88	96,737,130	2,694,472,742		27.85	209,404,344	4,389,075,297		20.96
1889-95	113,103,566	2,496,054,716		22.07	253,334,908	3,840,410,092		15.16
1865-95	380,174,978	10,463,036,497	27.55	25.54	727,043,290	13,403,734,660	18.44	17.53



TABLE XVII. (c).

An exhibit by years and certain periods of years, from 1850 to 1896, inclusive, of the total number of sheep and swine upon the farms of the United States, together with the total farm value of the same in currency and the average values in currency and gold.

YEARS.	SHEEP.				SWINE.			
	Total Number.	Total Value in Dollars, Currency.	Average Value.		Total Number.	Total Value in Dollars, Currency.	Average Value.	
			Currency	Gold.			Currency.	Gold.
1850...	21,723,220	.....	.....	.....	30,354,213	.....	.....	.....
1860...	22,471,275	.....	.....	.....	33,512,867	.....	.....	.....
1865...	28,647,269	154,807,466	5.40	2.50	13,070,887	111,796,318	8.55	3.96
1866...	32,695,797	146,425,697	4.50	3.20	13,616,876	120,673,158	8.86	6.33
1867...	39,385,386	132,774,660	3.37	2.50	24,693,534	134,111,424	5.43	4.04
1868...	38,991,912	98,407,809	2.53	1.82	24,317,258	110,766,266	4.55	3.29
1869...	37,724,279	82,139,979	2.17	1.60	23,316,476	146,188,755	6.26	4.62
1870...	40,853,000	93,364,433	2.28	1.88	26,751,400	187,191,502	6.99	5.77
1871...	31,851,000	74,085,837	2.32	2.10	29,457,500	182,602,352	6.19	5.60
1872...	31,679,300	88,771,197	2.80	2.57	31,796,300	138,733,828	4.36	4.00
1873...	33,002,400	97,922,350	2.96	2.63	32,632,050	133,729,615	4.09	3.64
1874...	33,928,200	88,690,569	2.61	2.34	30,860,900	134,565,526	4.36	3.91
1875...	33,783,600	94,320,652	2.79	2.45	28,062,200	149,869,234	5.34	4.75
1876...	35,935,300	93,666,318	2.60	2.31	25,726,800	175,070,484	6.80	6.03
1877...	35,804,200	80,892,683	2.27	2.13	28,077,100	171,077,196	6.09	5.73
1878...	35,740,500	80,603,062	2.25	2.22	32,262,500	160,838,532	4.98	4.91
1879...	38,123,800	79,023,984	.....	2.07	34,766,100	110,613,044	.....	3.18
1880...	40,765,900	90,230,537	.....	2.21	34,084,100	145,781,515	.....	4.28
1881...	43,569,899	104,070,759	.....	2.39	36,247,683	170,535,435	.....	4.70
1882...	45,016,224	106,595,954	.....	2.37	44,122,200	263,543,195	.....	5.98
1883...	49,237,291	124,365,335	.....	2.53	43,270,086	291,951,221	.....	6.75
1884...	50,626,626	119,902,706	.....	2.37	44,200,893	246,301,139	.....	5.57
1885...	50,360,243	107,960,650	.....	2.14	45,142,657	226,401,683	.....	5.02
1886...	48,322,331	92,443,867	.....	1.91	46,092,043	196,569,894	.....	4.25
1887...	44,759,314	89,872,839	.....	2.01	44,612,836	200,043,291	.....	4.48
1888...	43,544,755	89,279,926	.....	2.05	44,346,525	220,811,082	.....	4.98
1889...	42,599,079	90,640,369	.....	2.13	50,301,592	291,307,193	.....	5.79
1890...	44,336,072	100,659,761	.....	2.27	51,602,780	243,418,336	.....	4.72
1891...	43,431,136	108,397,447	.....	2.50	50,625,106	210,193,923	.....	4.72
1892...	44,938,365	116,121,290	.....	2.58	52,398,019	241,031,415	.....	4.10
1893...	47,273,553	125,909,264	.....	2.66	46,094,807	295,426,492	.....	4.41
1894...	45,048,017	89,186,110	.....	1.98	45,206,496	270,384,626	.....	5.98
1895...	42,294,064	66,685,767	.....	1.58	44,165,716	219,501,267	.....	4.97
1896...	38,298,783	65,167,735	.....	1.70	42,842,750	186,529,745	.....	4.35
1865-67	100,728,452	434,007,823	4.31	2.73	51,381,297	366,580,900	7.13	4.62
1868-71	149,420,191	347,948,058	2.33	1.84	103,842,634	626,748,875	6.04	4.88
1872-75	132,393,500	369,704,768	2.79	2.51	123,351,450	556,898,203	4.51	4.05
1876-79	145,603,800	334,186,047	2.30	2.18	120,832,500	617,599,256	5.11	4.84
1880-83	178,589,314	425,262,585	.....	2.38	157,674,069	871,811,366	.....	5.53
1884-87	194,068,514	410,180,062	.....	2.11	180,048,429	869,316,007	.....	4.83
1888-91	173,911,042	388,977,503	.....	2.24	196,876,008	965,730,534	.....	4.90
1892-95	179,553,909	397,902,431	.....	2.21	187,865,038	1,026,343,800	.....	5.46
1865-67	100,728,452	434,007,823	4.31	2.73	51,381,297	366,580,900	7.13	4.62
1868-71	248,030,091	623,332,174	2.55	2.11	199,131,584	1,033,777,844	5.19	4.39
1875-81	263,723,199	622,807,995	2.36	2.26	219,176,483	1,083,785,440	4.94	4.72
1882-88	331,866,784	730,421,277	.....	2.20	311,787,240	1,645,621,505	.....	5.27
1889-95	309,920,286	697,600,008	.....	2.24	340,394,516	1,771,263,252	.....	5.24
1865-95	1,254,268,812	3,108,169,277	2.48	2.25	1,121,871,420	5,901,028,941	5.26	4.96

TABLE XVII. (d).

An exhibit for certain years and periods of years, from 1865 to 1896, inclusive of the index numbers for the average value of the horses, mules, cows, oxen, sheep, and swine upon the farms of the United States.

YEARS.	Horses.	Mules.	Cows.	Oxen.	Sheep.	Swine.
1865.....	56	55	64	68	95	109
1866.....	90	84	127	122	121	173
1867.....	89	81	109	88	95	111
1868.....	82	66	100	85	69	92
1869.....	94	69	109	104	60	126
1870.....	101	106	122	104	71	158
1871.....	107	108	127	116	79	153
1872.....	102	104	111	101	97	109
1873.....	100	100	100	100	100	100
1874.....	77	90	95	90	89	107
1875.....	91	84	96	93	93	130
1876.....	87	79	97	95	87	165
1877.....	85	76	97	90	81	154
1878.....	87	74	98	95	84	133
1879.....	79	66	82	86	78	87
1880.....	83	72	88	90	84	117
1881.....	88	82	90	97	90	104
1882.....	89	84	98	111	90	164
1883.....	107	94	114	122	96	185
1884.....	113	99	119	132	90	153
1885.....	112	98	112	130	81	138
1886.....	108	94	103	113	72	116
1887.....	109	93	98	110	76	123
1888.....	109	94	93	99	77	139
1889.....	109	94	90	95	81	159
1890.....	104	92	84	85	86	139
1891.....	101	92	82	82	95	139
1892.....	98	89	81	85	98	113
1893.....	93	83	82	85	101	121
1894.....	72	73	82	82	75	164
1895.....	56	56	83	79	60	136
1896.....	51	53	85	89	64	119
1865-67.....	80	77	101	91	103	127
1868-71.....	98	96	119	103	69	134
1872-75.....	97	95	100	97	95	111
1876-79.....	85	73	93	91	82	130
1880-83.....	92	83	98	107	90	150
1884-87.....	110	96	108	122	80	113
1888-91.....	106	92	87	90	85	117
1892-95.....	79	75	82	83	84	150
1865-67.....	80	77	101	91	103	127
1868-74.....	98	97	100	101	80	121
1875-81.....	86	76	92	92	85	132
1882-88.....	102	93	106	117	83	145
1889-95.....	89	82	83	85	85	144
1865-95.....	94	87	97	98	85	136

TABLE XVII. (e).

A summary by years and certain periods of years of the total number of horses, mules, cows, oxen, sheep, and swine upon the farms of the United States, together with their total value in currency and their simple and corrected average values in currency and gold, and the index numbers for the simple and corrected average gold values.

YEARS.	Total Number of Animals.	Total Farm Value in Currency.	Total Farm Value in Gold.	AVERAGE VALUE			INDEX NUMBERS.	
				In Cur- rency.	In Gold.		To Simple Averages.	To Correct- ed Aver- ages.
					Simple Av'gs.	Cor- rected Av'gs.		
1865-67.....	212,066,468	\$3,438,336,251	\$2,245,254,004	\$16.21	\$10.59	\$13.33	73	91
1868-71.....	380,288,956	6,437,285,939	5,184,149,233	16.93	13.63	15.06	94	103
1872-75.....	405,942,320	6,581,599,719	5,904,090,774	16.21	14.54	14.42	100	99
1867-79.....	434,649,500	6,244,269,066	5,939,799,904	14.37	13.67	13.21	94	91
1880-83.....	531,038,937	7,543,386,828	.....	.....	14.20	14.61	98	100
1884-87.....	609,345,093	9,690,044,107	.....	.....	15.90	16.29	110	112
1888-91.....	640,233,687	9,064,647,274	.....	.....	15.10	14.46	104	99
1892-95.....	650,839,888	8,935,525,439	.....	.....	13.73	12.56	95	86
1865-67.....	212,066,468	\$3,438,336,251	2,245,254,004	16.21	10.59	13.33	73	91
1868-74.....	686,267,326	11,400,874,037	9,652,827,677	16.61	14.07	14.84	97	102
1875-81.....	781,877,044	11,160,993,495	10,676,925,042	14.27	13.66	13.29	94	91
1882-88.....	1,045,611,156	16,343,761,545	.....	.....	15.63	15.99	108	110
1889-95.....	1,138,582,855	16,191,129,295	.....	.....	14.22	13.25	98	91
1865-95.....	3,864,404,849	58,535,094,623	55,109,897,563	15.15	14.26	14.26	98	98
1865.....	58,547,363	990,879,228	458,777,083	16.92	7.84	9.72	54	67
1873.....	103,156,620	1,684,431,693	1,494,090,912	16.33	14.48	14.59	100	100
1896.....	146,767,531	1,627,926,084	.....	.....	11.09	10.43	77	71

TABLE XVII. (f).

A summary by animals of the total number of horses, mules, cows, oxen, sheep, and swine upon the farms of the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency, their simple and corrected average home gold values and index numbers calculated by different methods.

## HORSES.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS			
			Cur-ency.	Gold. (1)	Cor-rected Gold. (2)	To Column		Average Seven-teen States.	According to Relative Importance
						(1)	(2)		
1865-67.....	11,342,291	899,360,794	78.42	52.22	49.06	103	78	70	77
1868-71.....	23,166,747	1,779,043,182	76.80	62.01	59.75	122	97	93	97
1872-75.....	29,729,100	2,044,747,624	68.76	61.88	61.12	122	98	96	98
1876-79.....	33,102,700	1,908,919,922	57.67	54.96	54.69	108	88	82	89
1880-83.....	35,176,746	2,109,013,798	.....	59.95	59.96	118	96	89	87
1884-87.....	37,067,057	2,718,584,943	.....	73.34	73.77	144	118	109	119
1888-91.....	42,146,466	2,988,651,178	.....	70.91	72.99	140	117	109	118
1892-95.....	48,597,174	2,578,500,151	.....	53.05	54.78	104	88	86	88
1865-95.....	260,338,281	17,026,830,592	65.40	61.80	61.80	122	99	94	99
1865-67.....	11,342,291	899,360,794	78.42	52.22	49.06	103	78	70	77
1868-74.....	45,266,047	3,324,167,284	73.44	62.62	60.02	123	98	95	95
1875-81.....	58,821,629	3,417,198,140	58.09	55.61	55.08	109	88	82	88
1882-88.....	64,229,382	4,551,657,123	.....	70.87	71.39	139	115	106	116
1889-95.....	80,678,932	4,834,438,251	.....	59.92	61.70	118	99	94	99
1895.....	3,342,989	269,695,314	80.68	37.35	.....	74	.....	48	55
1873.....	7,400,600	526,117,855	71.09	50.64	62.23	100	100	100	100
1896.....	11,322,864	366,827,318	.....	32.40	32.75	64	52	57	57

Percentages 9.27.

## MULES.

1865-67.....	863,530	81,668,516	94.58	64.09	61.43	83	82	70	89
1868-71.....	2,206,900	197,653,867	89.56	72.47	70.81	94	95	88	95
1872-75.....	2,817,360	226,075,608	80.24	72.28	69.94	93	93	93	96
1876-79.....	3,609,000	221,549,516	61.39	57.70	58.71	75	78	76	79
1880-83.....	4,105,245	275,020,490	.....	66.99	67.36	87	89	83	93
1884-87.....	4,463,389	355,613,209	.....	79.67	79.42	103	106	97	109
1888-91.....	4,973,047	378,267,122	.....	76.06	76.68	98	102	95	105
1892-95.....	5,282,542	313,081,674	.....	59.27	60.17	77	80	78	82
1865-95.....	28,321,013	2,048,930,002	72.35	68.73	68.73	89	91	85	90
1865-67.....	863,530	81,668,516	94.58	64.09	61.43	83	82	70	89
1868-74.....	4,264,060	368,226,759	86.36	73.44	71.20	97	95	91	97
1875-81.....	6,415,863	401,824,176	62.63	59.78	60.06	77	81	77	82
1882-88.....	7,749,483	600,305,980	.....	77.46	77.28	100	103	95	106
1889-95.....	9,028,077	596,904,571	.....	66.12	66.99	86	89	86	91
1895.....	228,500	22,362,077	97.86	45.31	.....	58	.....	51	65
1873.....	683,900	58,155,132	83.57	77.01	74.88	100	100	100	100
1896.....	1,281,346	51,345,055	.....	40.07	40.25	52	54	55	55

Percentages 1.01.



TABLE XVII. (f).—Continued.

## COWS.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS			
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Average Seven- teen States.	According to Relative Importance.
						(1)	(2)		
1865-67.....	16,109,298	646,022,910	40.10	26.31	25.09	95	93	96	99
1868-71.....	28,544,616	1,105,299,892	38.72	31.38	31.09	117	116	109	119
1872-75.....	31,769,400	945,556,539	29.76	26.86	26.49	100	98	100	102
1876-79.....	33,837,000	898,323,293	26.55	25.33	24.98	90	92	94	94
1880-83.....	37,193,451	1,010,104,090	.....	27.16	27.15	101	100	100	103
1884-87.....	42,228,257	1,253,886,536	.....	29.69	29.86	111	110	113	114
1888-91.....	46,397,484	1,078,354,866	.....	23.24	23.72	83	88	94	89
1892-95.....	48,806,419	1,085,730,165	.....	22.25	22.85	83	85	88	85
1865-95.....	284,885,925	8,023,278,291	28.16	26.18	26.18	94	96	98	98
1865-67.....	16,109,298	646,022,910	40.10	26.31	25.09	95	93	96	99
1868-74.....	52,142,616	1,816,405,055	34.84	29.73	29.39	111	113	106	111
1875-81.....	59,812,970	1,569,624,109	26.24	24.96	24.74	89	92	92	93
1882-88.....	72,406,783	2,105,714,713	.....	28.96	29.68	106	110	111	111
1889-95.....	84,114,258	1,885,511,504	.....	22.42	22.78	85	85	95	86
1865.....	4,868,837	172,467,590	35.40	16.40	.....	.....	.....	66	58
1873.....	7,898,400	236,823,593	29.98	26.76	26.92	100	100	100	100
1896.....	11,764,950	274,853,815	.....	23.36	23.43	87	87	89	89

Percentages 10.14.

## OXEN.

1865-67.....	21,272,630	521,275,664	24.50	16.18	13.74	89	79	80	80
1868-71.....	42,569,451	965,564,351	22.69	18.41	18.11	102	103	106	104
1872-75.....	48,203,100	946,630,691	19.64	17.72	17.18	98	98	99	98
1876-79.....	56,449,807	981,449,992	17.39	16.62	16.55	92	94	98	95
1880-83.....	68,066,887	1,349,757,152	.....	19.83	19.83	110	113	112	113
1884-87.....	79,332,014	1,799,020,021	.....	22.68	22.64	125	129	132	129
1888-91.....	92,052,681	1,510,298,330	.....	16.41	17.27	91	99	104	99
1892-95.....	94,723,609	1,468,624,128	.....	15.50	16.17	86	93	94	93
1865-95.....	502,670,179	9,542,620,329	18.98	18.00	18.00	100	103	107	103
1865-67.....	21,272,630	521,275,664	24.50	16.18	13.74	89	79	80	80
1868-74.....	78,813,051	1,685,181,042	21.38	18.29	17.78	102	102	104	103
1875-81.....	100,540,953	1,762,630,764	17.53	16.80	16.86	93	96	97	96
1882-88.....	136,743,597	2,984,743,289	.....	21.83	21.79	121	125	127	124
1889-95.....	165,299,948	2,588,789,570	.....	15.66	16.25	87	92	98	94
1865.....	6,104,874	159,638,612	22.87	12.11	.....	.....	.....	55	.....
1873.....	12,129,200	244,860,709	20.19	18.00	17.51	100	100	100	100
1896.....	20,584,847	355,597,958	.....	17.27	17.49	96	99	100	94

Percentages 17.89.

TABLE XVII. (f).—Continued.

## SHEEP.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS			
			Currency.	Gold. (1)	Corrected Gold. (2)	To Column		Average Seven-teen States.	According to Relative Importance.
						(1)	(2)		
1865-67.....	87,754,937	371,277,392	4.23	2.77	2.66	103	101	92	98
1868-71.....	125,811,116	280,410,787	2.28	1.89	1.87	71	71	98	68
1872-75.....	105,971,600	292,390,975	2.76	2.52	2.47	94	94	95	94
1876-79.....	111,973,200	256,959,636	2.29	2.20	2.28	82	87	92	83
1880-83.....	129,116,763	320,170,631	.....	2.48	2.62	92	100	99	98
1884-87.....	126,686,612	282,728,788	.....	2.23	2.26	83	90	92	89
1888-91.....	100,034,210	241,126,167	.....	2.41	2.54	90	96	94	96
1892-95.....	99,505,974	239,604,539	.....	2.41	2.49	90	95	94	95
1865-95.....	886,854,412	2,290,668,915	2.58	2.36	2.36	80	90	91	90
1865-67.....	87,754,937	371,277,392	4.23	2.77	2.66	103	101	92	98
1868-74.....	205,180,016	506,793,892	2.47	2.14	2.10	80	80	84	79
1875-81.....	201,313,031	477,995,960	2.37	2.28	2.35	81	90	93	87
1882-88.....	219,267,359	511,744,706	.....	2.33	2.46	87	94	95	93
1889-95.....	173,339,069	422,856,965	.....	2.44	2.54	91	96	94	99
1865.....	24,976,867	133,304,148	5.34	2.46	.....	.....	.....	74	.....
1873.....	26,533,300	78,468,409	2.96	2.67	2.62	100	100	100	100
1896.....	18,162,544	33,916,265	.....	1.87	1.92	70	73	73	74

Percentages 31.57.

## SWINE.

1865-67.....	43,864,219	313,738,455	7.15	4.75	4.47	129	119	112	124
1868-71.....	78,397,457	492,967,168	6.29	5.09	5.10	134	136	113	136
1872-75.....	94,386,000	440,765,166	4.67	4.20	4.19	113	112	102	114
1876-79.....	88,895,700	488,963,163	5.50	5.24	5.22	141	139	120	141
1880-83.....	117,433,969	698,174,457	.....	5.95	5.94	161	158	126	157
1884-87.....	135,335,006	695,235,114	.....	5.14	5.08	139	135	118	135
1888-91.....	148,830,848	785,590,394	.....	5.28	5.28	142	140	115	140
1892-95.....	138,946,831	827,522,985	.....	5.96	5.93	161	158	127	158
1865-95.....	846,090,030	4,742,956,902	5.61	5.29	5.29	142	140	117	141
1865-67.....	43,864,219	313,738,455	7.15	4.75	4.47	129	119	112	124
1868-74.....	151,351,057	812,102,365	5.37	4.56	4.56	123	122	107	123
1875-81.....	160,996,449	855,059,404	5.31	5.07	5.07	137	135	115	136
1882-88.....	234,587,165	1,325,038,645	.....	5.65	5.65	153	150	125	149
1889-95.....	253,291,140	1,437,018,033	.....	5.63	5.62	153	149	122	149
1865.....	10,705,501	90,269,010	8.43	3.90	.....	.....	.....	93	.....
1873.....	25,042,800	104,155,620	4.16	3.70	3.76	100	100	100	100
1896.....	29,528,367	138,793,809	.....	4.70	4.74	130	126	108	126

Percentages 30.12.

TABLE XVII. (g).

A summary by years and certain periods of years, from 1865 to 1896, inclusive, of the horses, mules, cows, oxen, sheep, and swine on the farms of the States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, together with the total value of the same in currency, and the simple and corrected average values in gold and currency, and index numbers calculated by different methods.

## ALL LIVE STOCK.

YEARS.	Total Number.	Total Value in Dollars, Currency.	AVERAGE VALUE IN DOLLARS.			INDEX NUMBERS.				
			Cur- rency.	Gold. (1)	Cor- rected Gold. (2)	To Column		Av'rge Six Ani- mals.	According to Relative Importance.	
						(1)	(2)		(1)	(2)
1865-67....	181,206,905	2,833,352,731	15.64	10.30	12.35	74	87	97	88	92
1868-71....	300,696,287	4,826,939,247	16.05	13.00	14.45	93	102	98	103	112
1872-75....	312,886,560	4,896,166,603	15.65	14.11	14.15	101	99	92	100	102
1876-79....	327,867,407	4,756,165,522	14.51	13.83	13.49	99	95	91	93	104
1880-83....	391,093,061	5,762,240,618	.....	14.73	15.21	105	107	102	106	120
1884-87....	425,112,335	7,105,068,611	.....	16.71	17.00	119	119	110	120	124
1888-91....	434,434,736	6,982,288,057	.....	16.07	15.43	115	108	103	109	112
1892-95....	435,862,549	6,513,063,642	.....	14.94	13.47	106	95	94	94	108
1865-95....	2,809,159,840	43,675,285,031	15.55	14.60	14.60	104	103	98	103	111
1865-67....	181,206,905	2,833,352,731	15.64	10.30	12.35	74	87	97	88	92
1868-74....	537,016,847	8,512,876,397	15.85	13.53	14.57	96	102	95	102	106
1875-81....	587,900,895	8,484,332,553	14.43	13.80	13.51	98	95	91	94	104
1882-88....	735,283,769	12,079,204,456	.....	16.43	16.80	117	118	110	118	126
1889-95....	767,751,424	11,765,518,894	.....	15.32	14.10	109	99	98	99	109
				7.87	.....	56	.....	66	63	41
1865.....	51,529,752	853,781,990	16.57							
1873.....	79,688,200	1,248,581,318	15.67	13.97	14.23	100	100	100	100	100
1896.....	92,643,918	1,221,328,220	.....	23.89	11.10	171	78	73	80	87

- (1) With numbers and values of live stock as reported by Agricultural Department.  
 (2) With numbers and values in reduced proportions as explained in the report.

TABLE XVII. (h).

An exhibit for certain years and periods of years, from 1868 to 1895, inclusive, of the per capita number of horses, mules, cows, oxen, sheep, and swine upon the farms of the United States.

YEARS.	Oxen.	Swine.	Cows.	Mules.	Horses.	Sheep.
1868-71.....	.373	.693	.254	.021	.194	1.000
1872-75.....	.397	.749	.258	.032	.225	.804
1876-79.....	.412	.661	.249	.034	.225	.796
1880-83.....	.461	.777	.247	.035	.216	.880
1884-87.....	.557	.810	.253	.036	.213	.874
1888-91.....	.590	.812	.256	.037	.227	.717
1892-95.....	.547	.710	.249	.035	.241	.679
1868-74.....	.386	.734	.257	.030	.208	.914
1875-81.....	.412	.675	.249	.034	.227	.812
1882-88.....	.544	.811	.252	.036	.213	.863
1889-95.....	.565	.759	.252	.036	.235	.691
1868-95.....	.499	.749	.252	.034	.222	.814
1896.....	.460	.614	.231	.033	.217	.549

## CHAPTER XVIII.

## ALL CROPS AND LIVE STOCK COMBINED.

## INDEX NUMBERS ACCORDING TO RELATIVE IMPORTANCE.

Tables (a) to (e), inclusive, contain an exhibit of the calculations for the index numbers according to relative importance for the ten crops and all live stock for the various groups of states considered in this report. In parallel columns are presented the gold farm values for all the crops or live stock, or both, included in a given group, and also the nominal values of the same, which are the sums that the farmers would have realized for their products if sold at the average gold values that prevailed December, 1872, for crops, and January, 1873, for live stock. The index numbers according to relative importance given in this report are the ratios between the actual and nominal gold farm values for any year or period of years. Thus in Table (a) the total gold farm value for nine crops from 1862 to 1894 in the ten Mississippi Valley states was \$23,559,061,634, as had been shown in Table (b) of Chapter XIII. The quantity of nine crops which in thirty-three years had possessed a farm value for its producers as above stated was 1,816,175,157 tons. If this total quantity had all been sold at the average prices per ton which prevailed in December, 1872, it would have amounted to \$22,100,504,860, or an average of about \$12.13 a ton. The ratio between this sum and the actual value, as previously given, was 106. This is the index number for the nine crops for the thirty-three years in 1862 to 1894. In a corresponding manner all similar index numbers in Tables (a) to (e) in this chapter, and all others given in this report, have been calculated. The reliability of these numbers as measures or exhibits of average price movements, for a large number of articles is limited only by the character of the data included in the calculations. If the data used in all periods are gathered upon the same basis, and that basis reflects the relative commercial importance of the individual articles, the index numbers become an accurate and reliable exhibit of the av-



average price movement. If the data included in the calculations do not reflect the actual relative commercial importance of the several articles included, the resulting index numbers may be not only worthless but positively misleading. They will throw no light upon the subject investigated. In the same way a variation in the character of the data in the several periods of time included are reflected in these numbers, and change their relative importance as indices of the average price movement. In connection with the index numbers calculated for the corrected average values a brief consideration will be given to the character of the data included in these tables for different periods, and thus the relative value of the resulting index numbers.

#### INDEX NUMBERS FOR CORRECTED AVERAGE VALUES.

Tables (f) to (h), inclusive, present one series of calculation for the index numbers for corrected values. These index numbers express the average price movement for a fixed quantity or number of articles, as those according to relative importance do for a varying quantity. The quantity chosen is always the total for thirty-three years of the given articles included in the combination. Thus in calculating the index numbers for nine crops in the ten Mississippi Valley states there are taken for each period of time a total of 1,816,175,157 tons, the number given in Table XIII. (b). The gold farm value of this quantity for the thirty-three years, 1862 to 1894, was \$23,559,061,634. This sum and the corresponding sums for the same quantity at the average farm gold values that prevailed in each period are given in the first column of values in Table (f) of this chapter. Instead of being written in full, these values are expressed in millions of dollars, the last six figures being omitted in each case. The index number for these unvarying proportions of the nine crops are found by ascertaining the ratios between the total value for any given year or period and the values for 1872.

The corrected average values for live stock represent the average values in ten states in each period or year of 168,539,872 horses, 14,216,638 mules, 162,320,232 cows, 269,906,234 oxen, 445,938,104 sheep, and 594,540,145 swine. The totals for the values of live stock in Table (f), as those for the nine crops, are expressed in millions of dollars, omitting the last six figures. The totals for all live stock and nine crops are found by adding together the individual totals obtained as above described. The reliability of index numbers obtained by this method and by the preceding one depend upon the character of the data upon which they are predicated.

It should be noted in this connection that there may be considerable error in the numbers of live stock or quantities of farm products reported by the Agricultural Department and used in this report, and those errors may not lessen the value of that data for indices of the average price movement. Some errors of this character have been pointed out, showing a change in the average yield per acre. Other errors doubtless exist, affecting the number of acres reported as under cultivation and the number of animals on the farms each year or period. Such errors do affect the accuracy of all calculations showing the average value of an acre of farm produce, the value of the per capita of agricultural products for the nation, or the average value of the farm products for each agricultural worker. These errors do not render the calculation concerning the average price movement inaccurate when the errors are the same for all states or for all the products as they doubtless are for most years and periods of time. They do modify results concerning the average price movement where, as in the period 1862 to 1866, the data included in this report varies not only in quantities and number but also in average prices, as it did several years, as has been already explained.

#### REDUCED PROPORTIONS FOR LIVE STOCK.

Two sets of index numbers, both for those of corrected averages and according to relative importance, are calculated for live stock and all combinations thereof with nine and ten crops. The first includes the values, actual and nominal, of the full numbers of animals reported each year and period of years by the Agricultural Department in the several states and groups of states. The second set expresses the average price movement of the same number of swine, but one-half the number of oxen, one-third the number of sheep, one-fifth the number of cows, and one-eighth those of horses and mules. The attempt has been made by this use of changed proportions to express by the resulting figures the average price movement of that quantity of live stock which is annually sold from the farm, slaughtered for consumption on the farm, or put to use on the farm after reaching maturity. The proportions chosen are at best only approximate, and the results must be considered in connection with the figures, for live stock in proportions as reported by the Agricultural Department, of the relative average price movement of live stock in any group of states. The average price movement for live stock and all crops must be compared. A few such comparisons have already been presented. More detailed comparisons will now be given and attention called to the index numbers calculated by the two methods for the combined crops and live stock of the nation.

TABLE A.

A summary by index numbers for the nine crops of corn, oats, wheat, rye, barley, buckwheat, hay, potatoes, and tobacco, together with the horses, mules, cows, oxen, sheep, and swine raised and on the farms of the ten Mississippi Valley states, from 1862 to 1895, inclusive, and combinations of the nine crops and all said live stock.

YEARS.	Nine Crops.		Live Stock with Numbers as Reported.		Live Stock with Reduced Proportions.		Nine Crops and Live Stock as Reported.		Nine Crops and Live Stock with Reduced Proportions.	
	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.
1862-66. ....	102	95	89	89	93	95	96	91	100	94
1867-70. ....	125	120	107	104	115	112	116	111	123	118
1871-74. ....	115	114	100	100	103	104	107	106	113	111
1875-78. ....	94	94	96	96	107	107	96	95	91	98
1879-82. ....	126	124	112	112	126	126	119	117	126	124
1883-86. ....	97	97	123	124	126	127	110	111	104	105
1887-90. ....	105	108	112	111	116	115	109	109	108	110
1891-94. ....	105	104	98	96	114	111	101	99	107	106
1862-94. ....	107	106	106	106	115	114	106	105	109	109
1862-66. ....	102	95	89	89	93	95	96	91	100	94
1867-73. ....	117	115	104	103	108	109	110	108	115	113
1874-80. ....	104	103	98	95	108	107	100	100	105	104
1881-87. ....	110	110	122	122	130	130	117	116	115	115
1888-94. ....	105	105	102	101	115	112	102	103	107	107
1872. ....	100	100	100	100	100	100	100	100	100	100
1895. ....	80	88	76	81	98	90	78	84	85	88

The first period includes nine crops for most states from 1862 to 1866, and for live stock only the last three of those years. The same fact is to be noted in all tables in this chapter and in this report. It is to be noted that the index numbers by the two methods for live stock, for full and reduced proportions, differ but little in the first period actually covering the years 1864 to 1866, and given in the government reports under dates of January, 1865, 1866, and 1867. The corresponding index numbers for the nine crops differ much more. This difference is due, as has been explained at length on preceding pages, to the different relative importance which the two sets of index numbers give to the small quantity of the various crops raised in these years in Kansas and Nebraska, and which, owing to transient causes, sold for very high prices. The numbers according to relative importance, for reasons also explained at length, best express the relative prices of this period. The prices of all crops and all live stock were tending upward all through this period of five years, and hence the live stock, with reported numbers and values for the latter half thereof, express higher relative values than do the nine crops, with figures for five years. The live



stock, with values in 1865 to 1867 approximating those of the next period, do not show as great a relative advance in value from the first to the second periods as do the nine crops. The live stock rose from 1862 to 1884 in value about the same relatively as did the nine crops. They reached their maximum of farm values a little later in the period of high prices having its center in 1881 than did the nine crops, and for the four or seven-year periods ending with 1894 they had not fallen in price as much relatively as had the nine crops. The year 1895, however, saw the live stock values, as the result of the panic of 1893, reduced to about the same relative level as the prices of the nine crops.

#### ADVANCING AND NOT FALLING PRICES.

All the figures indicate advancing and not falling average prices in the Mississippi Valley. That advance movement can be measured in many ways. The principle of such measurement must be the same as for any wave movement, with points of elevation and depression. As the rising or falling of the tide may be ascertained by noting the crests of the waves, their depressions or the average height, so with this movement of prices. We may compare the average of many years, the low averages of successive low price years, or those of high priced years. The high priced period with its center in 1881 showed for nine crops, for live stock and their combinations, a higher level than that of the period of high prices that began with 1867 and broke in 1874. The low priced period of four years ending with 1894 was higher than the four-year period 1875 to 1878, or the earlier period 1862 to 1866. The low priced year, 1895, though exhibiting a great and disastrous fall of prices when compared with the four or seven years ending with 1894, was not so low as the year 1862 and some other years with which it has been compared in the body of this report. The years 1891 to 1894 showed by the index numbers according to relative importance an advance of nine per cent above that of 1862 to 1866 for nine crops, of seven per cent for all live stock, of sixteen per cent for all live stock in reduced proportion, and of twelve per cent for the combination of live stock and nine crops. The high prices of 1879 to 1882 were for all crops, and live stock in reduced proportion, six per cent above the high price of 1867 to 1870. The price of 1891 to 1894 was eight per cent above the low price of 1875 to 1878. Taking all the comparisons together, the high period compared with the high and the low with the low, the figures of this report, when summarized for all crops and live stock, show an average advance for the ten Mississippi Valley states of farm gold values in thirty-



three years of not far from twelve per cent. The purchasing power of gold in those states, in terms of farm products and live stock, had, therefore, depreciated to that extent, and not increased. The farmers of the Mississippi Valley had therefore been able to secure for themselves all the benefit that came from improved methods of cultivating the soil by the use of better farm implements and machinery, and also a share in the results of changed cost of transportation that equals twelve per cent of the earlier average value of all that was raised or produced upon the farms. This gain did not bring the average prices per ton or animal in the years 1891 to 1894 up to the level of previous high priced years, whether of 1867 to 1873 or of 1879 to 1882. It did, however, give the farmers a higher average return for toil than did the high priced years 1867 to 1873, but less than for the exceptional years of high price, 1879 to 1882. The gain for the farmer's income when comparing the four or seven-year period ending with 1894 with the years 1867 to 1870 was one of over thirty per cent, and when comparing with 1862 to 1866 of over sixty per cent. The analysis of farm prices, or of farm incomes, shows for the upper Mississippi Valley states a great appreciation in the exchange value of farm toil and a slight depreciation in the purchasing power of gold over products in thirty-three years. This relative decrease in the purchasing power of gold in terms of farm products, and the great increase in the exchange value of farm labor as expressed by the value of the products raised by that labor in the Mississippi Valley, is not found in a study of

#### THE PRICES OF THE SEVEN SELECTED SEABOARD STATES

of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California. The difference in the two sections may be noted by comparing the figures of the foregoing Table A with those of the following:

TABLE II. B.

Summary by index numbers for the nine crops of corn, oats, wheat, rye, barley, buckwheat, potatoes, hay, and tobacco, together with the horses, mules, cows, oxen, sheep and swine raised and on the farms of the seven selected seaboard states, from 1862 to 1895, inclusive, and combinations of the nine crops and all said live stock.

YEARS.	Nine Crops.		Live Stock with Numbers as Reported.		Live Stock with Reduced Proportions.		Nine Crops and Live Stock as Reported.		Nine Crops and Live Stock with Reduced Proportions.	
	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.
1862-66.....	88	79	83	85	90	93	86	81	89	81
1867-70.....	101	98	93	101	106	105	94	100	102	100
1871-74.....	105	103	98	98	99	100	101	100	103	102
1875-78.....	82	81	92	90	100	98	87	85	86	85
1879-82.....	94	94	99	99	109	109	97	96	98	97
1883-86.....	81	81	114	114	120	121	97	97	90	90
1887-90.....	80	80	102	104	105	107	91	92	86	86
1891-94.....	78	76	90	91	98	101	80	83	83	81
1862-94.....	87	85	98	99	105	105	93	92	91	90
1862-66.....	88	79	83	85	90	93	86	81	89	81
1867-73.....	104	101	100	101	102	103	102	101	103	101
1874-80.....	86	86	91	90	98	97	88	88	89	88
1881-87.....	87	86	111	112	119	119	99	99	94	94
1888-94.....	78	78	94	96	100	103	87	86	83	83
1872.....	100	100	100	100	100	100	100	100	100	100
1895.....	66	86	76	78	90	86	71	74	72	68

The corrected average values for all crops and live stock show a decline from the period 1862 to 1866, to 1891 to 1894 of six per cent. The index numbers according to relative importance show practically no difference in the two periods. This latter set of figures best express the relative prices of the two periods for the reasons already explained, due to the fact that the tables do not contain crop statistics or other reports for Texas, California, Virginia, or Georgia for more than one year, and that a high priced one in the period 1862 to 1866. The farmers of these seaboard states gained in the raising of these nine crops and the live stock a great advance from the war period to the period ending with 1873 or 1874. After that time they have steadily and continuously lost, as a whole, as the result of increased Western competition due to changing railway rates from the interior to the seaboard. Live stock interests in these states have not suffered as greatly as have the crops, and hence the average farmer in these states with a reliance upon live stock, and not upon the old system of average crops has suffered least from the results of changing railway rates upon the farm values of farm products in the different sections of our country.

## AVERAGE FARM PRICES IN THE UNITED STATES

can best be secured from a study of the detailed figures for the seventeen states included in the two selected groups of ten and seven. The index numbers for those states are shown in the following:

TABLE C.

A summary by index numbers of the price movement for the nine crops of corn, oats, wheat, rye, barley, buckwheat, hay, potatoes, and tobacco, together with the horses, mules, cows, oxen, sheep, and swine raised and on the farms of the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, from 1862 to 1895, inclusive, and combinations of the nine crops and all live stock.

YEARS.	Nine Crops.		Live Stock with Numbers as Reported.		Live Stock with Reduced Proportions.		Nine Crops and Live Stock as Reported.		Nine Crops and Live Stock with Reduced Proportions.	
	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.
1862-66. ....	97	88	87	88	92	92	92	88	95	89
1867-70. ....	115	110	102	103	112	109	108	106	114	110
1871-74. ....	111	109	99	100	102	102	105	104	109	107
1875-78. ....	89	89	95	93	104	103	92	91	93	92
1879-82. ....	113	112	107	106	120	119	110	109	115	114
1883-86. ....	90	91	119	120	124	125	105	106	98	99
1887-90. ....	95	97	108	109	112	112	102	103	99	101
1891-94. ....	94	92	95	94	108	108	94	93	97	96
1862-94. ....	98	98	103	103	111	110	101	104	102	101
1862-66. ....	97	88	87	88	92	92	92	88	95	89
1867-73. ....	112	108	102	102	106	106	107	105	110	108
1874-80. ....	97	96	95	94	104	103	96	95	99	98
1881-87. ....	100	101	118	118	126	126	109	109	107	107
1888-94. ....	94	94	99	99	109	109	97	97	97	98
1872. ....	100	100	100	100	100	100	100	100	100	100
1895. ....	74	74	76	80	95	87	75	77	79	80

Using the index numbers according to relative importance as the best measure for the relative prices of the years 1862 to 1866 with the imperfect data from many states, the foregoing tables show for that period a gain of four per cent in the average farm gold value of the nine crops, of six per cent in the average of all live stock as reported by the Department of Agriculture, of sixteen per cent in the value of live stock in the reduced proportions, already described, and of five and seven per cent for the nine crops and all live stock according to the use of live stock figures with reported numbers or in reduced proportions. The index numbers for all crops and live stock for the high-priced period, 1867 to 1870, was

110, and for the next high-priced period, 1879 to 1882, was 114, or four points higher. The low-priced period, 1875 to 1878, had an index number for nine crops and all live stock of 92 and that of the four years 1891 to 1894 of 96, or four points higher. The periods of high price and those of low for thirty-three years alike tell the same story of an advance in the long period of time from 1862 to 1894. The general conclusions for these nine crops and live stock for these seventeen states is therefore this: Prices have for the United States advanced from 1862 to 1894 about seven per cent. The corresponding advance from 1867 to 1881 was four per cent, and from 1878 to 1894 four per cent, or one-half that from the whole period of which the others only constitute about one-half.

THE FALL OF COTTON PRICES AND ITS EFFECT UPON GENERAL FARM VALUES

can be studied by the summary shown in Table D and E. The effect of that decline in the seven states as a whole is found in Table D for the seven selected seaboard states.

TABLE D.

A summary by index numbers of the price movement for the ten crops of cotton, corn, oats, wheat, rye, barley, buckwheat, potatoes, hay, and tobacco, together with that for horses, mules, cows, oxen, sheep, and swine raised and on the farms of New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, from 1862 to 1895, inclusive, and that of combinations of these ten crops and of the nine crops, excluding cotton and all said live stock.

YEARS.	Ten Crops.		Nine Crops and Live Stock as Reported.		Nine Crops and Live Stock with Reduced Proportions.		Ten Crops and Live Stock as Reported.		Ten Crops and Live Stock with Reduced Proportions.	
	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.
1862-66.....	.....	.....	86	81	89	81	.....	.....	.....	.....
1867-70.....	100	99	94	100	102	100	98	100	102	100
1871-74.....	105	103	101	100	103	102	102	101	103	102
1875-78.....	79	79	87	85	86	85	86	84	83	83
1879-82.....	89	89	97	96	98	97	94	93	93	92
1883-86.....	78	78	97	97	90	90	94	94	85	86
1887-90.....	76	75	91	92	86	86	88	88	82	82
1891-94.....	72	70	80	83	83	81	81	79	77	75
1862-94.....	83	83	93	92	91	90	90	90	80	87
1862-66.....	.....	.....	86	81	89	81	.....	.....	.....	.....
1867-73.....	104	101	102	101	103	101	102	101	103	101
1874-80.....	83	83	88	88	89	88	86	86	85	86
1881-87.....	83	82	99	99	94	94	96	95	89	89
1888-94.....	75	72	87	86	83	83	83	83	78	78
1872.....	100	100	100	100	100	100	100	100	100	100
1895.....	66	58	71	74	72	68	68	66	66	62



By comparing the index numbers for the combination of all live stock with the nine and ten crops, we note that the fall in cotton values has in these seven states reduced the average of prices since 1867 from four to six per cent below what is shown for all farm products excluding cotton. The resulting level of prices for the four or seven years ending with 1894 was an average decidedly below that for any preceding period shown in the table for ten crops and all live stock. It is below what was doubtless the average for the ten crops in 1862 to 1866 in these same states. The data is wanting for calculating that average in those years, and we can only infer what it was from the figures showing the relative value for the nine crops and live stock without the cotton in the same states. The average farm prices for these states fell most where the cotton was raised. New York and Pennsylvania show an average for all farm gold prices of crops and live stock greater in 1891 to 1894 than in 1862 to 1866. Virginia, California, and Georgia show a decline. In the latter two states this decline is very marked. This decline is far greater than is indicated by any set of index numbers in the foregoing exhibit. The effect of this decline in cotton prices upon average farm values in the nation may be noted from the summary for ten crops and all live stock as follows for seventeen states:

TABLE E.

A summary by index numbers of the price movement for the ten crops of cotton, corn, oats, wheat, rye, barley, buckwheat, potatoes, hay, and tobacco, together with that for horses, mules, cows, oxen, sheep, and swine raised and on the farms in the seventeen States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota, Nebraska, Kansas, New York, Pennsylvania, Kentucky, Virginia, Georgia, Texas, and California, from 1862 to 1891, inclusive, and that of combinations of these ten crops and of the nine crops, excluding cotton and all live stock.

YEARS.	Ten Crops.		Nine Crops and Live Stock as Reported.		Nine Crops and Live Stock with Reduced Proportions.		Ten Crops and Live Stock as Reported.		Ten Crops and Live Stock with Reduced Proportions.	
	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.	To Corrected Averages.	According to Relative Importance.
1862-66.....			92	88	95	89				
1867-70.....	112	108	108	106	114	110	108	106	112	109
1871-74.....	85	85	92	91	109	107	112	104	108	106
1875-78.....	109	108	105	104	93	92	90	89	89	88
1879-82.....	104	102	110	103	115	114	105	104	107	105
1883-86.....	84	85	105	106	98	99	101	101	93	93
1887-90.....	89	88	102	103	99	101	97	97	93	93
1891-94.....	85	81	94	93	97	96	89	87	90	87
1862-94.....	92	92	101	104	102	101	97	97	96	96
1862-66.....			92	88	95	89				
1867-73.....	110	107	107	105	110	108	106	105	109	107
1874-80.....	91	90	96	95	99	98	93	94	94	93
1881-87.....	93	93	109	103	107	107	105	104	100	100
1888-94.....	86	80	97	97	97	98	92	91	91	89
1872.....	100	100	100	100	100	100	100	100	100	100
1895.....	67	64	75	77	79	80	72	69	73	69

In these states the data for ten crops is available, and has been included in the tables of these reports, only from and after 1867. There is, therefore, no direct way of comparing the average price for these ten crops back of the period of high prices from 1867 to 1874. We can, however, ascertain within a very narrow margin of possible error the actual price movement. This can be done by comparing the index numbers shown in the last four columns of Table E for the high years and those for low years. Comparing index numbers for the period of high price, 1867 to 1870, with the corresponding period of high price somewhat later, from 1879 to 1882, we note a decline of from two to five points. The index numbers according to relative importance for ten crops and all live stock as reported show a decline of only two points, while the same set of index numbers for all crops and reduced proportions of live stock show a decline from 109 to 105.

Turning from these periods of average high price we can compare the period of 1875 to 1878 with that of 1891 to 1894. These numbers for two of the four sets of index numbers for all crops and animals show a decline of one point; one shows a decline of two points and the fourth an advance of one point. The average of all is a decline of one. Taking the average of the four sets of index numbers we have as the mean of the decline from 1867 to 1870, to 1879 to 1882 one of three and a half points or per cents, and that for the period of low prices, 1875 to 1878, to that of 1891 to 1894, of one point. The decline shown in the table was, therefore, more largely confined to the period before 1874. The detailed figures for the several crops and animals clearly establish this inference to be deduced from the foregoing Table E. The decline in price for crops in the seaboard states by reason of reduced railroad rates came to an end for some crops in 1872 and for others not until 1878. The minimum of average farm values for these states was reached for all crops excepting cotton between 1872 and 1878. After that minimum of prices in that period all tended upward until the panic of 1893. Cotton alone of all continued to decline until its minimum since the war was reached in 1895.

If we wish to trace the average price movement of all crops and live stock back of 1867 we can do it by methods of deduction only. Measured by the average of the four sets of index figures shown in Table C for nine crops and all live stock, there was a decline in the average price when comparing 1867 to 1870 with 1891 to 1894 of fourteen and a half points. When comparing 1862 to 1866 with the years 1891 to 1894 there was an advance, as shown by the mean of the index numbers according to relative importance, the only reliable measure for the earlier year, of six points.

Turning to the figures for the ten crops and all live stock we note a mean decline for the period of 1867-70 to 1891-94 of twenty and a half points, or six points more than was shown by the decline for the same sets of index numbers for the nine crops and all live stock. The addition of cotton to the combination of other crops with live stock brings into the same an element of price decline that practically balances the factors found in the other, on an average, making for higher prices. Some facts brought out by the foregoing analysis would lead to the conclusion, that, in the average of the prices for all crops, including cotton and live stock, when taking all factors into consideration, comparing periods of high price with high and low with low, there has been since 1862 a fall of from two to three per cent. There possibly has been such a small price decline. But before dogmatically asserting its existence consideration should be given to the defective data of this report for the period 1862 to 1866. That data, as has been mentioned many times, gives, when treated as in this report, an average of farm price for the seven states from two to ten per cent greater than a true average for those years and states. So likewise there is involved for the ten states a similar error, though a smaller one, for the same years. The exaggeration of actual prices here involved possibly more than balances any price decline shown from a comparative analysis of the index number for seventeen states of the nine and ten crops in combination with all live stock.

#### COMPARISONS WITH SENATE REPORT ON WAGES AND PRICES.

The analysis of farm prices for thirteen great staples, and for all live stock summed up in the accompanying tables, may be compared with the conclusions reached by the investigations of the United States Senate Committee on Prices and Wages in 1891. That committee, among other data gathered and tabulated by them, tabulated the market prices of agricultural staples, including meat, in the cities of New York, Chicago, and Cincinnati. On page 11 of Part I. of their report they have summed up by two sets of index numbers the changes in wholesale gold prices for farm products in these three cities from 1860 to 1897. For purposes of comparison arithmetical means are taken for the seven-year periods of that report of the first set of index numbers there presented. Those means are given in column 1 of the following exhibit. In the table and report referred to, the year 1860 is chosen as the basis of price comparison. In this report the year 1872 is thus chosen. By dividing the figures in column 1 of the senate report by 118.4, the index number of the senate committee for 1872, we have the results shown



in column 2 of the following exhibit. That column represents the average gold farm price according to the investigation of the senate committee when so changed as to make the year 1872 the basis of comparison. Column 3 of the exhibit gives the index numbers for this report for the seven selected states for all live stock and nine crops. The last column gives all live stock and ten crops. Both the third and last column include live stock numbers in reduced proportion as explained.

YEARS.	SENATE COMMITTEE.		SEVEN STATES, THIS REPORT.	
	As Reported 1860=100.	As Changed 1872=100.	Nine Crops and Live Stock.	Ten Crops and Live Stock.
1862-66 .....	126.0	107	89	.....
1867-73 .....	121.0	102	103	103
1874-80 .....	106.7	90	89	85
1881-87 .....	103.7	88	94	89
1888-94.....	95.4	80	83	78

The figures from the senate committee from 1888 to 1894 are the mean of the four years, 1888 to 1891, and not for the whole period. Excepting for the first, or war period, the general movement of prices reported by the senate committee agrees quite closely with that for the seven selected states. The difference is great in the first period for the figures given. This is due to the extraordinary prices for cotton included in the one set and not in the other.

#### MARKET VS. FARM PRICES.

But while the conclusions of the senate investigation agree with those of this report for a group of seaboard states, they do not agree with those for the central Mississippi Valley states or the seventeen states as representative of the nation's farm prices. The difference in the results reached for the nation mark the contrast between the market prices of centers of distribution and consumption of farm products and the prices actually realized by the farmers. The prices of the great American markets of consumption, Chicago, New York, and Cincinnati, whose figures were tabulated by the senate committee from 1867 to 1891 represent fairly well the average farm prices of the seaboard states of the nation. They fail to exhibit the movement of farm prices for that great center of agricultural production, the Mississippi Valley, and thus fail to exhibit that movement for the nation as a whole. They show by seven-year periods from 1862 to date a steady decline in aver-



age farm values. The figures of this report tabulated from the annual reports of the Agricultural Department show such a decline from 1867 for the seaboard states. They show an advance in values for the Mississippi Valley when comparing the years 1862 to 1866 or 1874 to 1878 with 1891 to 1894 or 1888 to 1894. They show two periods of high price in thirty-five years, both of which were higher than the present or than the other periods of years mentioned above in this paragraph. The nation as a whole, as shown by the statistics for seventeen states for all live stock and nine crops, excluding cotton, shows an advance when comparing 1862 to 1866 or 1875 to 1878 with the years 1888 to 1894. When cotton is included, there is from 1867 such a decline as to leave it uncertain whether there has been for the ten crops and live stock a fall of from two to five per cent or a slight advance. The data here analyzed will not for this combination of ten crops and live stock admit of dogmatic assertion of advance or fall in average price from 1862 to 1894. There remains but one point to be considered. Including live stock and all farm products, what changes in thirty-five years have the farmers of the United States seen in

#### THE COST OF PRODUCING FARM STAPLES?

On pages 397 to 401 is given an analysis for the ten crops of the annual return therefrom to the average male agricultural worker in ten, seven, and seventeen states. If the reduced proportions of live stock employed in this report for certain calculations represent fairly well the annual income on American farms from live stock, by dividing the sums which represent the value of that live stock by the number of male agricultural workers, we will have the average annual income from this source to the average farm worker. Dividing in this way it is found that the average amount of live stock produced on the farms each year for each agricultural worker is as follows in the three groups of states used in this report:

YEARS.	Ten States.	Seven States.	Seventeen States.
1867-73 .....	\$97.56	\$83.35	\$91.22
1874-80 .....	91.24	78.30	85.67
1881-87 .....	138.17	95.66	120.30
1888-94 .....	128.50	82.27	109.36

If the foregoing sums are added to the amounts given as the corrected averages for each agricultural worker, from ten crops, on pages 397 to 401, we have as the

## AVERAGE RETURNS FOR AGRICULTURAL LABOR

from the ten crops and all live stock (not including, however, butter, cheese, and such secondary products) the following sums:

YEARS.	Ten States.	Seven States.	Seventeen States.
1867-73 .....	\$351.78	\$369.82	\$389.32
1874-80 .....	373.51	339.80	380.93
1881-87 .....	482.81	390.74	472.68
1888-94 .....	453.93	351.83	434.88

These figures are only relative at most, as they do not include all the products of the farm. They do not, therefore, excepting approximately, represent the relative movement of the returns to agricultural labor in the United States or in the groups of ten and seven states. Taken as an approximate relative exhibit of that movement, it may be compared with the changes in the wages of all labor as summarized by the senate committee on page 14 of Part I. of their report. That summary by index numbers for periods corresponding to those of this report is as follows, 1860 being taken as 100.

YEARS.	Simple Average of all Wages.	Average According to Importance of all Wages
1862-66.....	86.5	89.8
1867-73.....	133.4	136.0
1874-80.....	139.9	139.9
1881-87.....	151.0	155.2
1883-91.....	157.9	164.4

General wages, it is seen, at each period of high prices for agricultural products advanced greatly, but did not fall with succeeding falling prices. They have steadily gone up, while the average returns to farm labor as shown by this report have advanced in a broken line, falling after each period of high prices and advancing with the next, but advancing to higher points than were reached in former periods of high prices. This is found when compar-

ing periods of high prices with one another, or with periods of low prices. Farm wages, as distinguished from the average returns for farm labor given above, must have had a movement something similar to that for all wages. They did not share in all the extra gain of the farm owners in periods of high prices any more than they lost with every year of poor crops or low prices. The senate committee figures cannot for all periods be satisfactorily compared with those of this report. They can be thus compared only for years or periods of average farm value, such as 1874 to 1880 and 1888 to 1894. The total return for each male agricultural worker for ten crops and all live stock as given above for seventeen states increased from \$380.93 in 1874 to 1880 to \$434.88 in the years 1888 to 1894. Here is a gain of fourteen per cent. The corresponding gain shown by the index numbers for wages of the senate committee are by one set thirteen and by the other seventeen per cent. The mean is fifteen, or one per cent more than is deduced from the figures of this report. For wages (which have a representative character, and are not influenced by railway rates as are farm products) this report thus agrees very closely with the committee's report. That report carries wages back of 1867, the point at which the data for calculating average returns per agricultural worker in this report comes to an end. Using the tables of average wages of that report to extend this study back to 1862 we find confirmation of the conclusions set forth on page 396 and succeeding pages, that whatever the changes in the selling price of farm products in the markets of the world and on the farms the cost of, or labor required in producing those products, has in thirty-five years been lessened fifty or sixty per cent. This lessening of cost of production brings the farmer an income of from forty to sixty per cent above his farm income of thirty-five years ago, when like periods are compared, the high of 1867 to 1874 with 1879 to 1882, the period 1891 to 1894 with 1862 to 1866.

How have all these changes affected the

#### PURCHASING POWER OF GOLD?

That purchasing power may be measured in many ways, and with each way of measuring it we obtain a different answer. Taking all the farm products of the whole United States as a measure, with its leading crops, including cotton, and all its live stock interests, the purchasing power of gold in terms of farm products is the same on an average to-day as in the five years, 1862 to 1865, or the years 1874 to 1878. There have been since 1862 many transient



causes that for a few years have greatly affected the prices of agricultural products, now enhancing and now depressing them. These factors have, therefore, transiently affected the purchasing power of gold for farm products in the United States as a whole. Such factors affecting prices occurred notably in 1867 to 1873 and 1879 to 1882, enhancing prices then. Other allied factors depressing prices have been active since 1893. These transient changes in farm prices have been intimately associated with increasing or restricted foreign demand for the products of American farms, and have had no connection with such financial legislation as that of 1873.

#### CHANGING RAILWAY RATES.

have greatly affected local prices. They have depressed prices in the seaboard states. Measured by the farm products of those states, gold has appreciated in value in thirty-five years. Cheap rates of freight transportation causing that appreciation takes from the farmers in those states the benefits that otherwise should have resulted to them from improved methods of farming and the use of better machinery and implements, and so leave them worse off relatively than they were before the era of high prices that began in 1866 to 1867. The only farmers in those seaboard and gulf states that have not suffered in this way from falling prices due to changing railway rates are those who have adopted a system of farming with crops but little modified in prices by fluctuation in rates of transportation. In contrast with those just mentioned the farmers in the upper Mississippi Valley as a whole have gained as much from the changes that have followed the modern revolution in methods of transportation and the rates for the same as the seaboard farmers have lost. For them the purchasing power of gold in terms of their farm products has greatly fallen. The final result when the whole nation is included is no change in average prices, no change in the purchasing power of gold over the average of all farm products in all sections of our common country. This statement involves the condition, that farm values as a whole shall be compared under like circumstances. High prices which have occurred at various times in the past thirty-five years and in all ages shall be compared with other periods of high price, and low shall be compared with low, and average with average price.

#### PURCHASING POWER OF HUMAN LABOR.

But while, taking all facts into consideration, no trace can be found of any permanent change in terms of farm products, at farm



prices, in the purchasing power of gold in the United States there have been great changes in the producing power of human toil on the farm. In the Mississippi Valley that change has been since 1862 one that gives to the average farm worker a producing power above that possessed by his predecessor thirty-five years ago of not less than sixty, and possibly seventy-five per cent. There has been a smaller relative gain in the seaboard states where old systems of husbandry prevail and old methods of work are in vogue to a greater extent than in the newer West. The changed producing power of the average farm worker vastly increases the purchasing power of his toil, even though gold in exchange for his products on the farm is relatively the same as from 1862 to 1866. In this increase we note a tremendous fall in the purchasing power of gold over or in exchange for human labor, the only final measure for testing the value of gold or any other commodity. That decline in the purchasing power of gold in terms of human labor, its only final measure and test, has since 1862 in the United States been not less than forty per cent, and for the Mississippi Valley farm workers sixty per cent.

TABLE XVIII. (a).

A comparative exhibit for years and certain periods of years, from 1862 to 1895, inclusive, for certain groups of states in the American Union, of the total gold farm values of the nine crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, and tobacco raised in the given groups of states, together with the nominal values of the said crops at the average prices that prevailed in December, 1872, and the ratios of the actual and nominal values, or index numbers, calculated according to relative importance.

## TEN STATES.

## SEVEN STATES.

YEARS.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices December, 1872.	Ratios of Values 1872=100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices December, 1872.	Ratios of Values 1872=100.
1862-66	1,763,396,277	1,857,698,844	95	1,201,513,928	1,520,800,074	79
1867-70	2,120,354,867	1,766,430,067	120	1,588,885,470	1,610,566,580	98
1871-74	2,176,530,554	1,915,952,298	114	1,635,346,722	1,586,145,301	103
1875-78	2,534,780,007	2,679,567,682	94	1,600,517,868	1,992,351,057	81
1879-82	3,997,463,217	3,234,541,968	124	2,051,911,191	2,180,804,800	94
1883-86	3,462,610,626	3,549,266,674	97	1,839,293,562	2,263,906,330	81
1887-90	3,671,292,877	3,398,411,711	108	1,818,206,633	2,267,613,545	80
1891-94	3,832,633,209	3,698,635,616	104	1,902,157,609	2,515,660,021	76
1862-94	23,559,061,634	22,100,504,860	106	13,646,833,033	15,937,847,708	86
1862-66	1,763,396,277	1,857,698,844	95	1,201,513,928	1,520,800,074	79
1867-73	3,690,639,944	3,204,951,900	115	2,801,214,330	2,783,866,993	101
1874-80	4,998,139,546	4,825,359,200	103	3,006,549,421	3,508,176,566	86
1881-87	6,454,267,938	5,873,303,000	110	3,373,512,334	3,905,075,549	86
1888-94	6,652,617,929	6,339,191,916	105	3,264,043,020	4,219,928,526	78
1895...	726,594,432	892,829,882	88	393,017,946	610,248,500	64

## SEVENTEEN STATES.

1862-66	2,964,910,205	3,378,498,918	88	.....	.....	.....
1867-70	3,709,240,337	3,376,996,647	110	.....	.....	.....
1871-74	3,811,877,276	3,502,097,599	109	.....	.....	.....
1875-78	4,144,297,875	4,671,918,739	89	.....	.....	.....
1879-82	6,049,374,408	5,415,346,768	112	.....	.....	.....
1883-86	5,301,904,188	5,813,173,004	91	.....	.....	.....
1887-90	5,489,439,560	5,666,025,256	97	.....	.....	.....
1891-94	5,734,790,818	6,214,295,637	92	.....	.....	.....
1862-94	37,205,894,667	38,038,352,568	98	.....	.....	.....
1862-66	2,964,910,205	3,378,498,918	88	.....	.....	.....
1867-73	6,491,854,274	5,988,818,893	108	.....	.....	.....
1874-80	8,004,688,967	8,333,535,766	96	.....	.....	.....
1881-87	9,827,780,272	9,778,378,549	101	.....	.....	.....
1888-94	9,916,660,949	10,559,120,442	94	.....	.....	.....
1895...	1,119,612,378	1,503,078,472	74	.....	.....	.....

TABLE XVIII. (b).

A comparative exhibit for years and certain periods of years, from 1862 to 1895, inclusive, for certain groups of states in the American Union, of the total gold farm values of the ten crops of corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, tobacco, and cotton raised in the given groups of states, together with the nominal values of the said crops at the average prices that prevailed in December, 1872, and the ratios of the actual and nominal values, or index numbers, calculated according to relative importance.

## SEVEN STATES (a).

## SEVENTEEN STATES (b).

YEARS.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices December, 1872.	Ratios of Values 1872=100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices, December, 1872.	Ratios of Values 1872=100.
1862-66	.....	.....	.....	.....	.....	.....
1867-70	1,811,042,643	1,829,585,502	99	4,375,711,857	4,034,053,411	108
1871-74	1,912,548,164	1,855,629,545	103	4,643,481,602	4,310,550,331	108
1875-78	1,837,120,177	2,337,128,013	79	4,827,104,803	5,706,249,607	85
1879-82	2,342,876,536	2,644,011,621	89	6,922,270,443	6,804,967,232	102
1883-86	2,114,459,795	2,721,154,386	78	6,127,402,887	7,184,917,172	85
1887-90	2,149,302,370	2,847,320,894	75	6,482,786,621	7,405,147,304	88
1891-94 *	2,196,563,380	3,156,286,629	70	6,618,008,130	8,136,175,461	81
1867-94	*14,363,913,065	17,391,116,590	83	39,996,766,343	43,582,060,518	92
1862-66	.....	.....	.....	.....	.....	.....
1867-73	3,228,865,269	3,203,194,944	101	7,774,807,093	7,246,802,745	107
1874-80	3,445,168,001	4,153,563,039	83	9,320,544,705	10,269,695,186	90
1881-87	3,877,947,410	4,726,955,097	82	11,341,085,500	12,244,017,193	93
1888-94 *	3,811,982,385	5,307,403,510	72	11,560,329,045	13,821,545,394	80
1895*..	462,128,510	796,326,599	58	1,326,944,070	2,061,312,500	64

\*Including cotton crop of 1894 instead of 1895, figures for 1895 not being available.

(a) Including one-third of cotton crop of the nation.

(b) Including eighty per cent of the cotton crop of the nation.

TABLE XVIII. (c).

A comparative exhibit for certain years and periods of years, from 1865 to 1896, inclusive, for certain groups of states in the American Union, of the gold farm values of the total number of horses, mules, cows, oxen, sheep, and swine, and of reduced numbers of said animals (the numbers used being explained in the body of this report) and nominal values both for the total and reduced numbers of animals, the nominal values being for said animals the values which prevailed in January, 1873, together with the ratios of the actual and nominal values, or index numbers, calculated according to relative importance.

## TEN STATES.

YEARS.	WITH NUMBERS AND VALUES AS REPORTED BY AGRICULTURAL DEPARTMENT.			WITH NUMBERS AND VALUES IN REDUCED PROPORTIONS AS EXPLAINED IN REPORT.		
	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values 1873=100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values 1873=100.
1865-67	1,116,788,045	1,252,816,246	89	381,623,075	400,783,733	95
1868-71	2,196,196,367	2,106,721,159	104	721,601,750	641,578,381	112
1872-75	2,571,987,004	2,560,349,740	100	815,442,793	782,867,402	104
1876-79	2,632,968,128	2,744,582,764	96	861,794,011	804,235,283	107
1880-83	3,592,240,379	3,219,898,987	112	1,294,282,580	1,021,909,733	126
1884-87	4,571,648,044	3,701,159,955	124	1,535,038,988	1,206,600,667	127
1888-91	4,528,822,207	4,066,257,428	111	1,530,642,343	1,328,599,346	115
1892-95	4,321,921,844	4,527,072,963	96	1,538,807,643	1,391,205,353	111
1865-95	25,532,572,018	24,178,859,252	106	8,679,233,183	7,577,779,898	114
1865-67	1,116,788,045	1,252,816,246	89	381,623,075	400,783,733	95
1868-74	4,154,278,436	4,016,206,955	103	1,338,076,611	1,231,219,804	109
1875-81	4,759,345,032	4,904,286,782	95	1,557,459,289	1,450,553,878	107
1882-88	7,765,773,581	6,363,215,077	122	2,697,853,815	2,076,657,717	130
1889-95	7,736,386,924	7,642,334,192	101	2,704,220,393	2,418,564,766	112
1896...	778,872,256	1,048,028,946	74	285,164,177	315,662,449	90

## SEVEN STATES.

1865-67	749,947,130	875,289,833	85	245,536,874	262,694,739	93
1868-71	1,712,230,535	1,688,882,090	101	525,096,066	499,106,358	105
1872-75	1,843,626,911	1,875,252,930	98	523,806,098	525,835,200	100
1876-79	1,902,754,977	2,120,988,688	90	580,440,525	591,508,903	98
1880-83	2,170,000,239	2,202,665,947	99	685,519,100	631,375,153	109
1884-87	2,533,420,567	2,222,351,016	114	789,001,142	654,270,654	121
1888-91	2,453,465,850	2,367,901,498	104	727,008,366	680,576,482	107
1892-95	2,191,141,796	2,405,575,637	91	681,489,346	674,867,884	101
1865-95	15,556,588,005	15,758,907,639	99	4,757,897,517	4,520,230,373	105
1865-67	749,947,130	875,289,833	85	245,536,874	262,694,739	93
1868-74	3,112,878,004	3,088,966,748	101	921,994,541	894,522,227	103
1875-81	3,351,200,026	3,740,166,453	90	1,011,199,828	1,042,409,105	97
1882-88	4,313,430,875	3,866,009,661	112	1,355,276,371	1,134,468,148	119
1889-95	4,029,131,970	4,188,474,944	96	1,223,889,903	1,186,136,154	103
1896...	442,455,964	569,406,834	78	149,976,343	186,079,474	86



TABLE XVIII. (c).—*Continued.*

## SEVENTEEN STATES.

YEARS.	WITH NUMBERS AND VALUES AS REPORTED BY AGRICULTURAL DEPARTMENT.			WITH NUMBERS AND VALUES IN REDUCED PROPORTIONS AS EXPLAINED IN REPORT.		
	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values 1873=100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values 1873=100.
1865-67	1,866,735,175	2,128,106,079	88	627,159,949	663,478,472	92
1868-71	3,908,426,902	3,795,603,249	103	1,246,697,816	1,140,684,739	109
1872-75	4,415,613,915	4,435,602,670	100	1,339,248,891	1,308,702,602	102
1876-79	4,535,723,105	4,865,571,452	93	1,442,234,536	1,395,739,186	103
1880-83	5,762,240,618	5,422,564,944	106	1,979,801,680	1,653,284,886	119
1884-87	7,105,068,611	5,923,510,971	120	2,324,040,130	1,860,871,321	125
1888-91	6,982,288,057	6,434,158,926	109	2,257,650,709	2,000,175,828	112
1892-95	6,513,063,640	6,932,648,600	94	2,220,296,989	2,066,073,237	108
1865-95	41,089,160,023	39,937,766,891	103	13,437,130,700	12,098,010,271	110
1865-67	1,866,735,175	2,128,106,079	88	627,159,949	663,478,472	92
1868-74	7,267,156,440	7,105,173,703	102	2,260,071,152	2,125,742,031	106
1875-81	8,110,545,058	8,644,453,235	94	2,568,659,117	2,492,962,983	103
1882-88	12,079,204,456	10,220,224,738	118	4,053,130,186	3,211,125,865	126
1889-95	11,765,518,894	11,830,800,136	99	3,928,110,296	3,604,700,920	109
1896...	1,221,328,220	1,617,435,780	63	435,140,520	501,741,923	87

TABLE XVIII. (d).

A comparative exhibit for certain years and periods of years, from 1862 to 1896, inclusive, for certain groups of states in the American Union of the gold farm values of the nine leading crops, excluding cotton, and all live stock, and the gold farm value of said crops in combination with reduced proportions of said animals (the proportions used being explained in the body of this report), and nominal values for both combinations, said nominal values being for said crops and animals the values which prevailed December, 1872, and January, 1873, together with the ratios of the actual and nominal values, or index numbers, calculated according to relative importance.

## TEN STATES.

YEARS.	WITH NUMBERS AND VALUES OF LIVE STOCK AS REPORTED BY AGRICULTURAL DEPARTMENT.			WITH NUMBERS AND VALUES OF LIVE STOCK IN REDUCED PROPORTIONS AS EXPLAINED IN REPORT.		
	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values, 1872=100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values, 1872=100
1862-66	2,880,184,322	3,110,515,090	91	2,145,019,352	2,258,482,577	94
1867-70	4,316,551,234	3,873,151,226	111	2,841,956,617	2,408,008,448	118
1871-74	4,748,517,558	4,476,302,038	106	2,991,973,347	2,698,819,700	111
1875-78	5,167,748,135	5,424,150,446	95	3,396,574,018	3,483,802,965	98
1879-82	7,589,703,596	6,545,440,965	117	5,291,745,797	4,256,451,701	124
1883-86	8,034,258,670	7,250,426,629	111	4,997,649,614	4,755,867,341	105
1887-90	8,200,115,084	7,464,669,139	100	5,201,935,220	4,727,011,037	110
1891-94	8,154,555,053	8,225,708,579	99	5,371,440,852	5,089,840,969	106
1862-94	49,091,633,652	46,279,364,112	105	32,238,294,817	29,678,284,758	109
1862-66	2,880,184,322	3,110,515,090	91	2,145,019,352	2,258,482,577	94
1867-73	7,844,918,380	7,221,158,855	108	5,028,716,555	4,436,171,704	113
1874-80	9,757,484,578	9,729,645,982	100	6,555,598,835	6,275,913,078	104
1881-87	14,220,041,519	12,236,518,077	116	9,152,121,753	7,949,960,717	115
1888-94	14,389,004,853	13,981,526,108	103	9,356,838,322	8,757,756,682	107
1895...	1,505,466,688	1,940,858,828	84	1,011,758,609	1,208,492,331	88

## SEVEN STATES.

1862-66	1,951,461,058	2,396,089,907	81	1,447,050,802	1,783,494,813	81
1867-70	3,301,116,005	3,299,448,670	100	2,113,981,536	2,109,672,938	100
1871-74	3,478,973,633	3,461,398,231	100	2,159,152,820	2,111,980,501	102
1875-78	3,512,272,845	4,113,390,745	85	2,189,958,393	2,583,854,960	85
1879-82	4,221,911,430	4,383,470,747	96	2,737,430,291	2,812,179,953	97
1883-86	4,372,714,129	4,486,257,346	97	2,628,294,704	2,918,176,984	90
1887-90	4,271,672,533	4,635,515,043	92	2,545,215,049	2,948,190,027	86
1891-94	4,093,299,405	4,921,235,658	83	2,583,646,955	3,190,527,905	81
1862-94	29,203,421,038	31,696,755,347	92	18,404,730,550	20,458,078,081	90
1862-66	1,951,461,058	2,396,089,907	81	1,447,050,802	1,783,494,813	81
1867-73	5,914,092,334	5,872,833,741	101	3,723,208,871	3,678,389,220	101
1874-80	6,357,749,447	7,248,343,019	88	4,017,749,249	4,550,585,671	88
1881-87	7,686,943,209	7,771,085,210	99	4,728,788,705	5,039,543,697	94
1888-94	7,293,174,990	8,408,403,470	86	4,487,932,923	5,406,064,680	83
1895...	835,473,910	1,179,655,424	74	542,994,289	796,328,064	68

TABLE XVIII. (d).—Continued.

## SEVENTEEN STATES.

YEARS.	WITH NUMBERS AND VALUES OF LIVE STOCK AS REPORTED BY AGRICULTURAL DEPARTMENT.			WITH NUMBERS AND VALUES OF LIVE STOCK IN REDUCED PROPORTIONS AS EXPLAINED IN REPORT.		
	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values, 1872==100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values, 1872==100
1862-66	4,831,645,380	5,506,604,997	88	3,592,070,154	4,041,977,390	89
1867-70	7,617,667,239	7,172,599,896	106	4,955,938,153	4,517,681,386	110
1871-74	8,227,491,191	7,937,700,269	104	5,151,126,167	4,810,800,201	107
1875-78	8,680,020,980	9,537,490,191	91	5,586,532,411	6,067,657,925	92
1879-82	11,811,615,026	10,837,911,712	109	8,029,176,088	7,068,631,654	114
1883-86	12,406,972,799	11,736,683,975	106	7,625,944,318	7,674,044,325	99
1887-90	12,471,787,617	12,100,184,182	103	7,747,150,269	7,675,201,084	101
1891-94	12,247,854,458	13,146,944,237	93	7,955,087,807	8,280,368,874	96
1862-94	78,295,054,690	77,976,119,450	104	50,643,025,367	50,136,362,839	101
1862-66	4,831,645,380	5,506,604,997	88	3,592,070,154	4,041,977,390	89
1867-73	13,759,010,714	13,038,992,596	105	8,751,925,426	8,114,560,924	108
1874-80	16,115,234,025	16,977,989,001	95	10,573,348,084	10,826,498,749	98
1881-87	21,906,984,728	20,007,603,287	109	13,880,910,458	12,989,504,414	107
1888-94	21,682,179,843	22,389,929,578	97	13,844,771,245	14,163,821,362	98
1895...	2,340,940,598	3,120,514,252	77	1,554,752,898	2,004,820,395	80

TABLE XVIII. (e).

A comparative exhibit for certain years and periods of years, from 1862 to 1896, inclusive, for certain groups of states in the American Union, of the gold farm values of the ten crops, including cotton, and all live stock, and the gold farm value of said crops in combination with reduced proportions of said animals (the proportions used being explained in the body of this report), and nominal values for both combinations, said nominal values being for said crops and animals the values which prevailed December, 1872, and January, 1873, together with the ratios of the actual and nominal values, or index numbers, calculated according to relative importance.

SEVEN STATES (a).

YEARS.	WITH NUMBERS AND VALUES OF LIVE STOCK AS REPORTED BY AGRICULTURAL DEPARTMENT.			WITH NUMBERS AND VALUES OF LIVE STOCK IN REDUCED PROPORTIONS AS EXPLAINED IN REPORT.		
	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values, 1872=100.	Reported Total Actual Value in Each Period.	Nominal Values at Average Prices January, 1873.	Ratios of Values, 1872=100
1862-66	3,523,273,178	3,518,467,592	100	2,336,138,709	2,328,691,860	100
1867-70	3,756,175,075	3,730,882,475	101	2,436,354,262	2,381,464,745	102
1875-78	3,739,875,154	4,458,116,701	84	2,417,560,702	2,928,631,916	83
1879-82	4,512,876,775	4,846,677,568	93	3,028,395,636	3,275,386,774	92
1883-86	4,647,880,362	4,943,505,402	94	2,903,460,937	3,375,425,040	86
1887-90	4,602,768,220	5,215,222,392	88	2,876,310,736	3,527,897,376	82
* '91-04	4,387,705,176	5,561,862,266	79	2,878,052,726	3,831,154,513	75
* '67-94	29,170,553,940	32,274,734,396	90	18,876,273,708	21,648,652,224	87
1862-66	6,341,743,273	6,292,161,692	101	4,150,859,810	4,098,717,171	101
1867-73	6,796,368,027	7,893,729,490	86	4,456,367,829	5,195,972,144	86
1874-80	8,191,378,285	8,592,964,756	95	5,233,223,781	5,861,423,245	89
* '88-94	7,841,064,355	9,495,878,458	83	5,035,822,288	6,493,539,664	78
*1895.	904,584,474	1,365,733,433	66	612,104,853	982,406,073	62

SEVENTEEN STATES (b).

1862-66	8,284,138,759	7,829,656,660	106	5,622,409,673	5,174,738,150	109
1867-70	9,059,095,517	8,746,153,001	104	5,982,730,493	5,619,252,933	106
1871-74	9,362,827,908	10,571,821,059	89	6,269,339,339	7,101,988,793	88
1875-78	12,684,511,061	12,227,532,176	104	8,902,072,123	8,458,252,118	105
1879-82	13,232,471,498	13,108,428,143	101	8,451,443,017	9,045,788,493	93
1883-86	13,465,074,678	13,839,306,230	97	8,740,437,330	9,414,323,132	93
1887-90	13,131,071,770	15,068,824,061	87	8,838,305,119	10,202,248,698	87
* '91-94	79,219,191,191	81,391,721,330	97	52,806,737,093	55,016,592,317	96
* '67-94	79,219,191,191	81,391,721,330	97	52,806,737,093	55,016,592,317	96
1862-66	15,041,963,533	14,351,976,448	105	10,034,878,244	9,372,544,776	107
1867-73	17,431,089,763	18,914,148,421	92	11,889,203,822	12,762,658,169	93
1874-80	23,420,289,956	22,473,241,931	104	15,394,215,686	15,455,143,058	100
* '88-94	23,325,847,939	25,652,354,530	91	15,488,439,341	17,426,246,314	89
*1895..	2,548,272,290	3,678,748,280	69	1,762,084,590	2,563,054,423	69

\* Including cotton crop for 1894 instead of 1895, figures for 1895 not being available.

(a) Including one-third of the cotton crop of the nation.

(b) Including eighty per cent of the cotton crop of the nation.



TABLE XVIII. (f).

A comparative exhibit for certain years and periods of years for the selected groups of ten, seven, and seventeen states of the American Union, of the nominal values in millions of dollars gold, at the average prices for the given periods of time in the said groups of states, of a quantity of the nine leading crops, excluding cotton, and of a number of animals equal to the total reported by the Agricultural Department for said groups of states in the thirty-three years from 1862 to 1895, inclusive, and the sums of said values of crops and live stock and ratios between the values for the given periods and the year 1872—or index numbers for the corrected values of this report, together with the corresponding index numbers calculated according to relative importance.

## NINE CROPS.

YEARS.	TEN STATES.			SEVEN STATES.			SEVENTEEN STATES.		
	Nominal Values in Millions of Dollars, Gold.	Index Numbers.		Nominal Values in Millions of Dollars, Gold.	Index Numbers.		Nominal Values in Millions of Dollars, Gold.	Index Numbers.	
		For Correct'd Values.	According to Relative Importance.		For Corrected Values.	According to Relative Importance.		For Correct'd Values.	According to Relative Importance.
1862-66....	22,575	102	95	13,895	88	79	36,470	97	88
1867-70....	27,643	125	120	15,840	101	98	43,482	115	110
1871-74....	25,409	115	114	16,464	105	103	41,872	111	109
1875-78....	20,777	94	94	12,874	82	81	33,652	89	89
1879-82....	27,788	126	124	14,856	94	94	42,644	113	112
1883-86....	21,231	97	97	12,742	81	81	33,974	90	91
1887-90....	23,224	105	108	12,639	80	80	35,860	95	97
1891-94....	23,157	105	104	12,272	78	76	35,429	94	92
1862-94....	23,559	107	106	13,647	87	85	37,206	98	98
1862-66....	22,575	102	95	13,895	88	79	36,470	97	88
1867-73....	25,808	117	115	16,295	104	101	42,103	112	108
1874-80....	22,939	104	103	13,490	86	86	36,429	97	96
1881-87....	24,283	110	110	13,645	87	86	37,928	100	101
1883-94....	23,175	105	105	12,353	78	78	35,528	94	94
1872.....	22,031	100	100	15,730	100	100	37,760	100	100
1895.....	17,690	80	88	10,393	66	86	28,083	74	74

## ALL LIVE STOCK WITH NUMBERS AS REPORTED BY AGRICULTURAL DEPARTMENT.

1865-67....	21,585	89	89	13,130	83	85	34,715	87	88
1868-71....	25,899	107	104	14,697	93	101	40,595	102	103
1872-75....	24,250	100	100	15,509	98	98	39,758	99	100
1876-79....	23,503	96	96	14,594	92	90	38,097	95	93
1880-83....	27,081	112	112	15,646	99	99	42,727	107	106
1884-87....	29,812	123	124	17,956	114	114	47,769	119	120
1888-91....	27,164	112	111	16,195	102	104	43,359	108	109
1892-95....	23,600	98	96	14,239	90	91	37,839	95	94
1865-95....	25,533	106	106	15,557	98	99	41,089	103	103
1865-67....	21,585	89	89	13,130	83	85	34,715	87	88
1868-74....	25,116	104	103	15,806	100	101	40,922	102	102
1875-81....	23,600	98	95	14,342	91	90	37,942	95	94
1882-88....	29,629	122	122	17,567	111	112	47,196	118	118
1889-95....	24,683	102	101	14,914	94	96	39,597	99	99
1873.....	24,183	100	100	15,806	100	100	39,989	100	100
1896.....	18,487	76	81	12,076	76	78	30,563	76	80

TABLE XVIII. (f)—*Continued.*

TOTAL FOR NINE CROPS AND REPORTED VALUES OF ALL LIVE STOCK.

YEARS.	TEN STATES.			SEVEN STATES.			SEVENTEEN STATES.		
	Nominal Values in Mil- lions of Dollars Gold.	Index Numbers.		Nominal Values in Mil- lions of Dollars Gold.	Index Numbers.		Nominal Values in Mil- lions of Dollars Gold.	Index Numbers.	
		For Correct'd Values.	Accord- ing to Relative Import- ance.		For Corrected Values.	Accord- ing to Relative Import- ance.		For Correct'd Values.	Accord- ing to Relative Import- ance.
1862-66. . . .	44,160	96	91	27,024	86	81	71,185	92	88
1867-70. . . .	53,541	116	111	30,536	94	100	84,077	108	106
1871-74. . . .	49,658	107	106	31,972	101	100	81,631	105	104
1875-78. . . .	44,280	96	95	27,468	87	85	71,748	92	91
1879-82. . . .	54,869	119	117	30,502	97	96	85,371	110	109
1883-86. . . .	51,044	110	111	30,698	97	97	81,742	105	106
1887-90. . . .	50,394	109	109	28,834	91	92	79,228	102	103
1891-92. . . .	46,757	101	99	26,512	80	83	73,268	94	93
1862-94. . . .	49,092	106	105	29,203	93	92	78,295	101	104
1862-66. . . .	44,160	96	91	27,024	86	81	71,185	92	88
1867-73. . . .	50,924	110	108	32,101	102	101	83,025	107	105
1874-80. . . .	46,539	100	100	27,832	88	88	74,371	96	95
1881-87. . . .	53,912	117	116	31,212	99	99	80,124	109	109
1888-94. . . .	47,857	102	103	27,267	87	86	75,124	97	97
1872. . . . .	46,214	100	100	31,536	100	100	77,749	100	100
1895. . . . .	36,177	78	84	22,469	71	74	58,646	75	77

TABLE XVIII. (g).

A comparative exhibit for certain years and periods of years for the selected groups of ten, seven, and seventeen states of the American Union, of the nominal values in millions of dollars gold, at the average prices for the given periods of time in the said groups of states, of a quantity of the nine leading crops, excluding cotton, and of a number of swine equal to the total reported by the Agricultural Department, and of the oxen one-half, of sheep one-third, of cows one-fifth, and of horses and mules one-eighth of those thus reported for said groups of states in the thirty-three years from 1862 to 1895, inclusive, and the sums of said values of crops and live stock and ratios between the values for the given periods and the year 1872—or the index numbers for the corrected values of this report, together with the corresponding index numbers calculated according to relative importance:

ALL LIVE STOCK WITH NUMBERS REDUCED FROM THOSE REPORTED BY THE AGRICULTURAL DEPARTMENT.

YEARS.	TEN STATES.			SEVEN STATES.			SEVENTEEN STATES.		
	Nominal Values in Millions of Dollars, Gold.	Index Numbers		Nominal Values in Millions of Dollars, Gold.	Index Numbers.		Nominal Values in Millions of Dollars, Gold.	Index Numbers.	
		For Corrected Value.	According to Relative Importance.		For Corrected Value.	According to Relative Importance.		For Corrected Value.	According to Relative Importance.
1865-67....	7,079	93	95	4,084	90	93	11,162	92	92
1868-71....	8,704	115	112	4,822	106	105	13,526	112	109
1872-75....	7,803	103	104	4,507	99	100	12,310	102	102
1876-79....	8,127	107	107	4,539	100	98	12,666	104	103
1880-83....	9,564	126	126	4,955	109	109	14,519	120	119
1884-87....	9,583	126	127	5,471	120	121	15,054	124	125
1888-91....	8,781	116	115	4,783	105	107	13,564	112	112
1892-95....	8,603	114	111	4,470	98	101	13,073	108	108
1865-95....	8,679	115	114	4,758	105	105	13,437	111	110
1865-67....	7,079	93	95	4,084	90	93	11,162	92	92
1868-74....	8,221	108	109	4,633	102	103	12,854	106	106
1875-81....	8,178	108	107	4,462	98	97	12,639	104	103
1882-88....	9,860	130	130	5,412	119	119	15,272	126	126
1889-95....	8,703	115	112	4,560	100	103	13,263	109	109
1873.....	7,577	100	100	4,545	100	100	12,122	100	100
1896.....	7,452	98	90	4,109	90	86	11,561	95	87

NINE CROPS WITH LIVE STOCK IN REDUCED PROPORTIONS.

1862-66....	29,654	100	94	17,978	89	81	47,632	95	89
1867-70....	36,347	123	118	20,662	102	100	57,008	114	110
1871-74....	33,211	113	111	20,971	103	102	54,182	109	107
1875-78....	28,905	91	98	17,413	86	85	46,318	93	92
1879-82....	37,352	126	124	19,811	98	97	57,163	115	114
1883-86....	30,814	104	105	18,213	90	90	49,027	98	99
1887-90....	32,010	108	110	17,423	86	86	49,453	99	101
1891-94....	31,759	107	106	16,743	83	81	48,552	97	96
1862-94....	32,238	109	109	18,405	91	90	50,643	102	101
1862-66....	29,654	100	94	17,978	89	81	47,632	95	89
1867-73....	34,029	115	113	20,927	103	101	54,957	110	108
1874-80....	31,116	105	104	17,952	89	88	49,068	99	98
1881-87....	34,142	115	115	19,057	94	94	53,199	107	107
1888-94....	31,878	107	107	16,913	83	83	48,791	97	98
1873.....	29,608	100	100	20,275	100	100	49,882	100	100
1896.....	25,142	85	88	14,502	72	68	39,645	79	80

TABLE XVIII. (h).

A comparative exhibit for certain years and periods of years for the selected groups of seven and seventeen states of the American Union, of the nominal values in millions of dollars gold, at the average prices for the given periods of time in the said groups of states of a quantity of the ten leading crops, including cotton, and of a number of swine equal to the total reported by the Agricultural Department, and of the oxen one-half, of sheep one-third, of cows one-fifth, and of horses and mules one-eighth of those thus reported for said groups of states in the thirty-three years from 1862 to 1895, inclusive, and the sums of said values of crops and live stock and ratio between the values for the given periods and the year 1872—or the index numbers for the corrected values of this report, together with the corresponding index numbers, calculated according to relative importance.

## SEVEN STATES.

YEARS.	TEN CROPS.			TEN CROPS, FULL VALUES OF LIVE STOCK.			TEN CROPS AND REDUCED VALUES OF LIVE STOCK.		
	Nominal Values in Millions of Dollars, Gold.	Index Numbers.		Nominal Values in Millions of Dollars, Gold.	Index Numbers.		Nominal Values in Millions of Dollars, Gold.	Index Numbers.	
		For Corrected Values.	According to Relative Importance.		For Corrected Values.	According to Relative Importance.		For Corrected Values.	According to Relative Importance.
1862-66....	19,606	100	99	34,302	98	100	24,428	102	100
1867-70....	20,288	105	103	35,797	102	101	24,795	103	102
1871-74....	15,328	79	79	29,922	86	84	19,867	83	83
1875-78....	17,257	89	89	32,903	94	93	22,211	93	92
1879-82....	14,979	78	78	32,935	94	94	20,450	85	86
1883-86....	14,763	76	75	30,958	88	88	19,546	82	82
1887-90....	13,981	72	70	28,220	81	79	18,451	77	75
1891-94....									
1862-94....	16,053	83	83	31,608	90	90	20,323	85	87
1862-66....	20,086	104	101	35,892	102	101	24,719	103	101
1867-73....	16,016	83	83	30,358	86	86	20,478	85	86
1874-80....	15,939	83	82	33,606	96	95	21,351	89	89
1881-87....	14,226	75	72	29,140	83	83	18,786	78	78
1888-94....									
1873.....	19,418	100	100	35,224	100	100	23,963	100	100
1895.....	11,774	66	58	23,850	68	66	15,883	66	62

## SEVENTEEN STATES.

1862-66....	52,522	112	108	93,117	108	106	66,048	112	109
1867-70....	51,053	109	108	90,811	112	104	63,363	108	106
1871-74....	39,542	85	85	77,639	90	89	52,208	89	88
1875-78....	48,406	104	102	91,133	105	104	62,926	107	105
1879-82....	39,343	84	85	87,112	101	101	54,397	93	93
1883-86....	40,965	89	88	84,324	97	97	54,530	93	93
1887-90....	39,530	85	81	77,369	89	87	52,602	90	87
1891-94....									
1862-94....	42,980	92	92	84,069	97	97	56,417	96	96
1862-66....	51,203	110	107	92,125	106	105	64,057	109	107
1867-73....	42,494	91	90	80,436	93	92	55,133	94	93
1874-80....	43,433	93	93	90,630	105	104	58,705	100	100
1881-87....	40,024	86	80	79,620	92	91	53,287	91	89
1888-94....									
1873.....	46,613	100	100	86,600	100	100	58,735	100	100
1895.....	31,397	67	64	61,960	72	68	42,958	73	69



## DESCRIPTION OF GRAPHIC PLATES.

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Eighteen plates are presented in this report showing by the graphic method the movement of average prices in the United States as the same is indicated by the tables of the several chapters. In all of those plates the data is presented not for single years but for the average of four and seven-year periods. The left-hand half of each plate presents the data arranged by four-year periods, while the right-hand half gives the same arranged by seven-year periods. The first best exhibits the resulting variation in price due to transient causes; the latter is the truest exponent of the permanent trend of prices in the several states and groups of states. In all of the seventeen plates, with the exception of Number X., the price movement is shown for each of the seventeen states and also for the groups of ten, seven, and seventeen states and for the nation. The figures represented on the plates for the individual states and for the nation are, with one or two exceptions, stated on the plates, the figures for simple average values. The lines for the groups of ten, seven, and seventeen states are in all cases those which illustrate the price movement of the corrected average farm values of this report. All lines, whether for simple or corrected average values, are those which present the gold farm values of a given crop or animal, or group of crops or live stock, to be illustrated by the given plate.

### BASE LINES ON PLATES:

Each horizontal space represents a year, and those years are separated by heavy perpendicular lines so as to represent the four-year periods shown on the left-hand side of the plates and the seven-year periods on the right-hand side of the same. Every tenth horizontal line on the plates is also a heavier one than the others, and is used as a base line for several states or groups of states. On all plates there are, therefore, some nine separate base lines. The base line for each graphic line shown in any plate can be determined at a glance by a reference to the figures given on the margins showing for them periods, 1862 to 1865, 1891 to 1894, or 1888



## DESCRIPTION OF GRAPHIC PLATES.

---

Eighteen plates are presented in this report showing by the graphic method the movement of average prices in the United States as the same is indicated by the tables of the several chapters. In all of those plates the data is presented not for single years but for the average of four and seven-year periods. The left-hand half of each plate presents the data arranged by four-year periods, while the right-hand half gives the same arranged by seven-year periods. The first best exhibits the resulting variation in price due to transient causes; the latter is the truest exponent of the permanent trend of prices in the several states and groups of states. In all of the seventeen plates, with the exception of Number X., the price movement is shown for each of the seventeen states and also for the groups of ten, seven, and seventeen states and for the nation. The figures represented on the plates for the individual states and for the nation are, with one or two exceptions, stated on the plates, the figures for simple average values. The lines for the groups of ten, seven, and seventeen states are in all cases those which illustrate the price movement of the corrected average farm values of this report. All lines, whether for simple or corrected average values, are those which present the gold farm values of a given crop or animal, or group of crops or live stock, to be illustrated by the given plate.

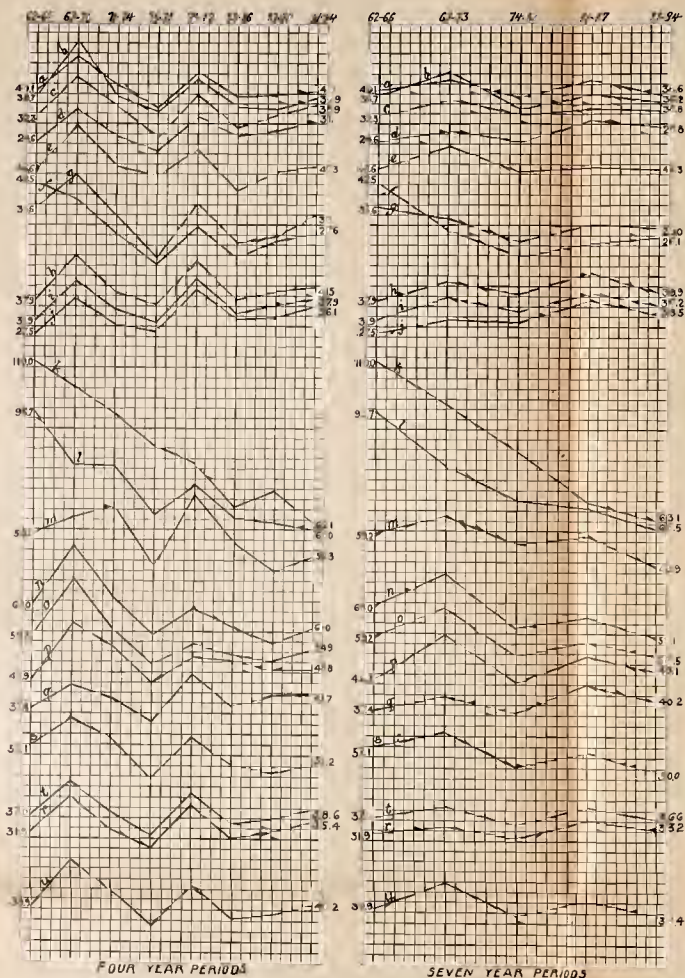
### BASE LINES ON PLATES:

Each horizontal space represents a year, and those years are separated by heavy perpendicular lines so as to represent the four-year periods shown on the left-hand side of the plates and the seven-year periods on the right-hand side of the same. Every tenth horizontal line on the plates is also a heavier one than the others, and is used as a base line for several states or groups of states. On all plates there are, therefore, some nine separate base lines. The base line for each graphic line shown in any plate can be determined at a glance by a reference to the figures given on the margins showing for them periods, 1862 to 1865, 1891 to 1894, or 1888



I

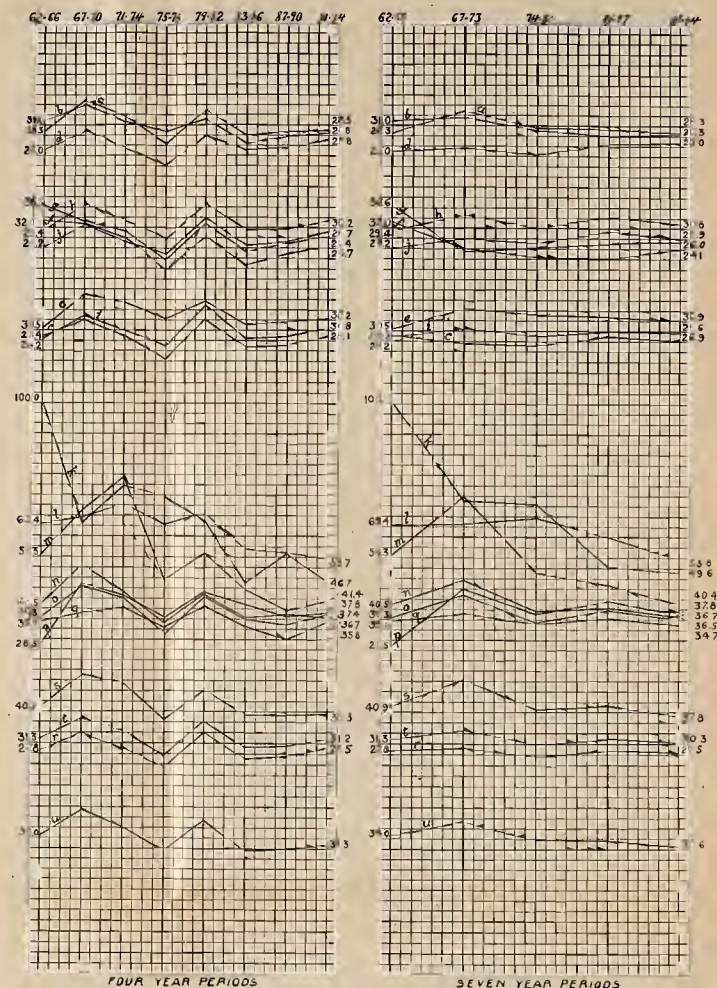
## PRICE STATISTICS CORN



Graphic illustration of the price movement for simple average Gold Farm values  
 a. Wisconsin, b. Minnesota, c. Missouri, d. Iowa, e. Michigan, f. Nebraska, g. Kansas, h. Ohio, i. Indiana, j. Illinois, k. California, l. Georgia, m. Texas, n. New York, o. Pennsylvania, p. Virginia, q. Kentucky, r. Corrected average Gold Farm values, s. first ten states, t. last seven states, u. seventeen states, v. the Nation  
 Each perpendicular space represents three cents a bushel, the price per bushel in cents at the beginning and end of each period, given in the margin

II

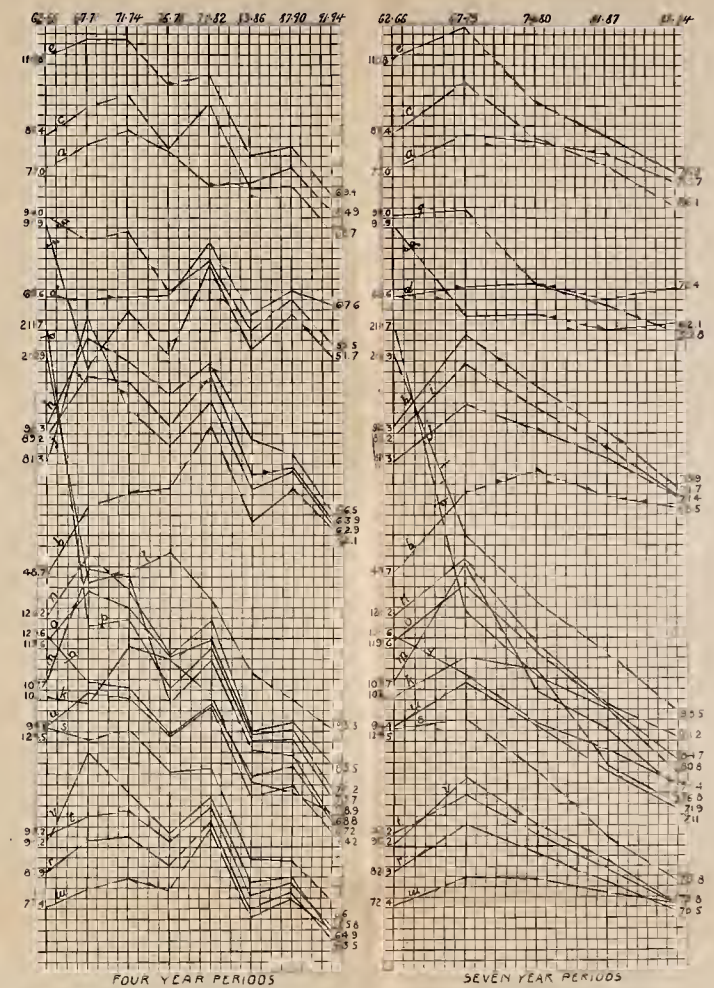
## PRICE STATISTICS OATS



Graphic illustration of the price movement for simple average Gold Farm values  
 a. Wisconsin, b. Minnesota, c. Missouri, d. Iowa, e. Michigan, f. Nebraska, g. Kansas, h. Ohio, i. Indiana, j. Illinois, k. California, l. Georgia, m. Texas, n. New York, o. Pennsylvania, p. Virginia, q. Kentucky, u. Nation  
 Corrected average Gold Farm values, r. ten states, s. seven states, t. seventeen states  
 Each perpendicular space represents three cents a bushel, the price per bushel in cents at the beginning and end of each period, given in the margin

III

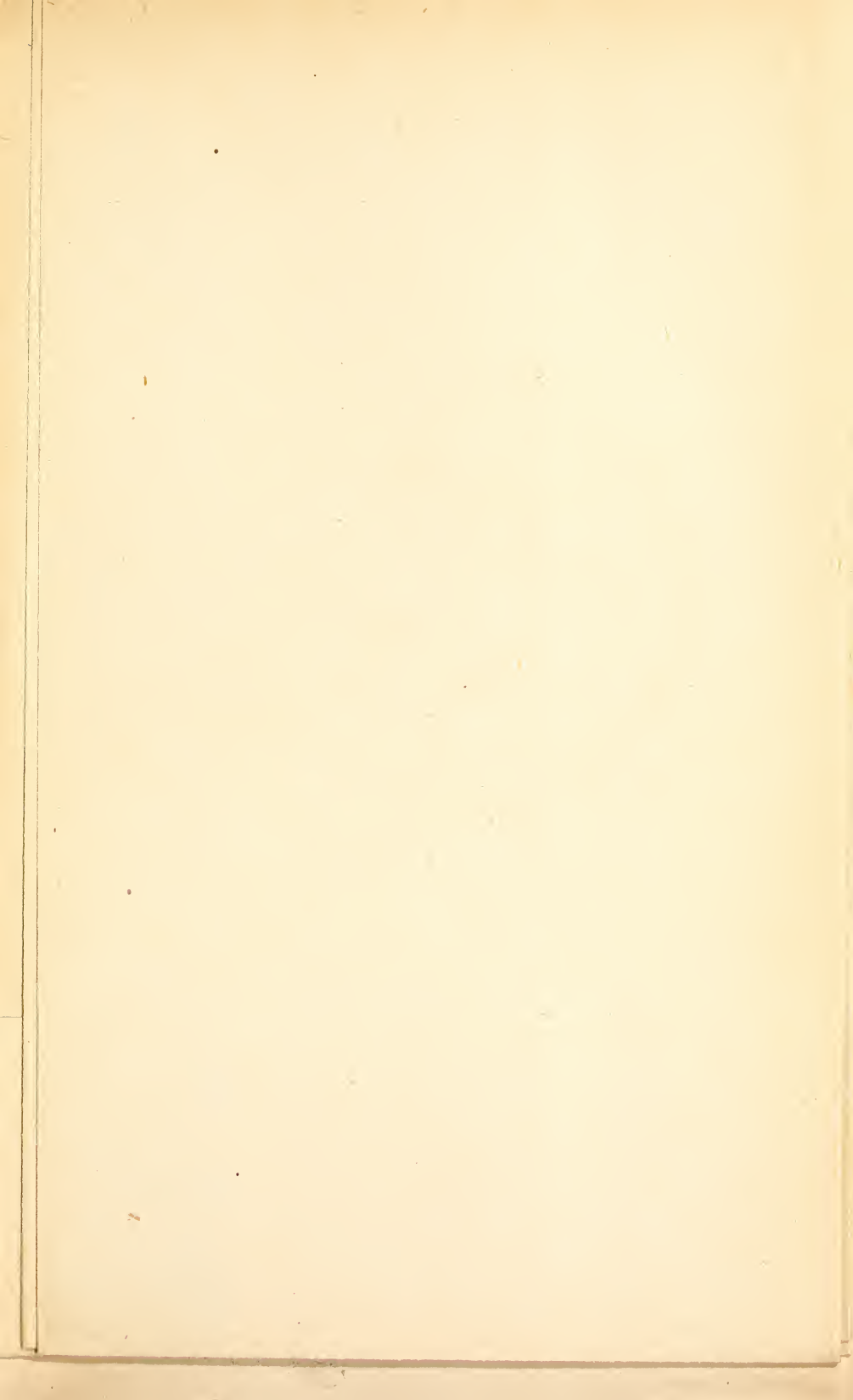
## PRICE STATISTICS WHEAT



Graphic illustration of the price movement for simple average Gold Farm values  
 a. Wisconsin, b. Minnesota, c. Missouri, d. Iowa, e. Michigan, f. Nebraska, g. Kansas, h. Ohio, i. Indiana, j. Illinois, k. California, l. Georgia, m. Texas, n. New York, o. Pennsylvania, p. Virginia, q. Kentucky, u. Nation  
 Corrected average Gold Farm values, r. ten states, s. seven states, t. seventeen states, v. winter wheat  
 Each perpendicular space represents three cents a bushel, the price per bushel in cents at the beginning and end of each period, given in the margin



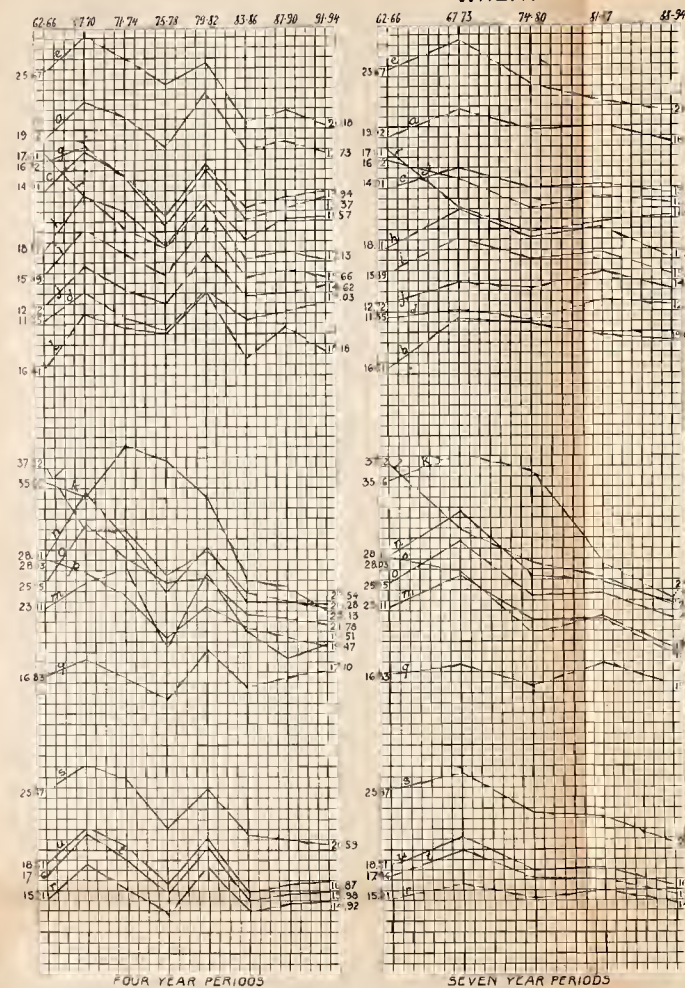






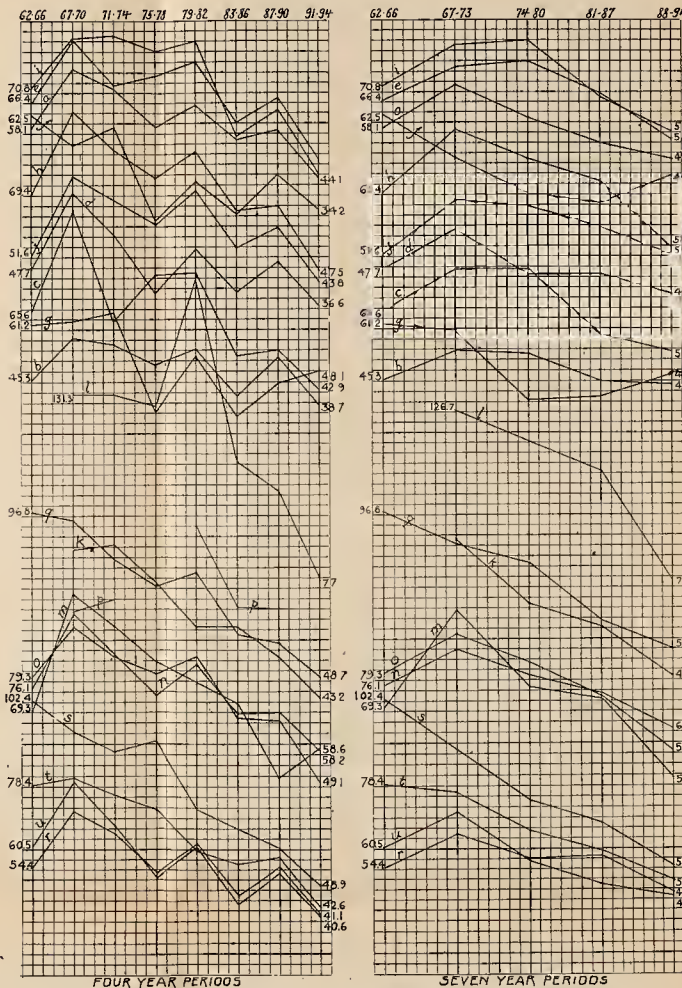


# IV PRICE STATISTICS CORN OATS WHEAT COMBINED



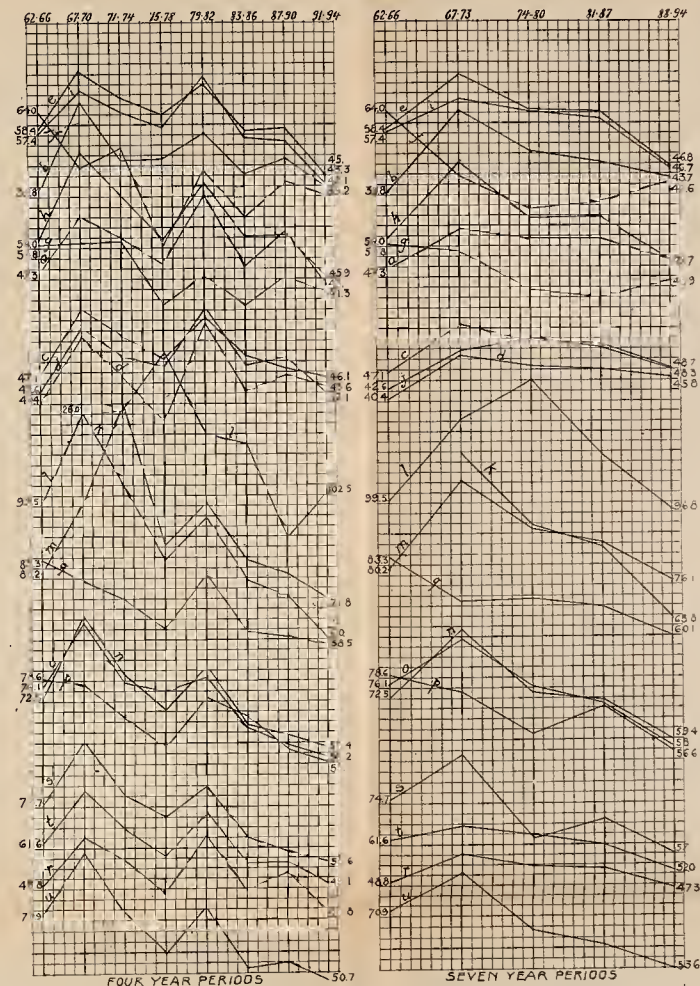
Graphic illustration of the price movement for corrected average Gold Farm values  
a. Wisconsin b. Minnesota c. Missouri d. Iowa e. Michigan f. Nebraska g. Kansas h. Ohio i. Indiana  
j. Illinois k. California l. Georgia m. Texas n. New York o. Pennsylvania p. Virginia q. Kentucky r. ten states  
s. seven states t. seventeen states u. the Nation.  
Each perpendicular space represents one dollar a ton. The price per ton in dollars, at the beginning and end of each period, given in the margin.

# V PRICE STATISTICS BARLEY



Graphic illustration of the price movement for simple average Gold Farm values  
a. Wisconsin b. Minnesota c. Missouri d. Iowa e. Michigan f. Nebraska g. Kansas h. Ohio i. Indiana  
j. Illinois k. California l. Georgia m. Texas n. New York o. Pennsylvania p. Virginia q. Kentucky u. the Nation.  
Corrected average Gold Farm values. r. ten states, s. seven states, t. seventeen states.  
Each perpendicular space represents three cents a bushel. The price per bushel, in cents, at the beginning and end of each period, given in the margin.

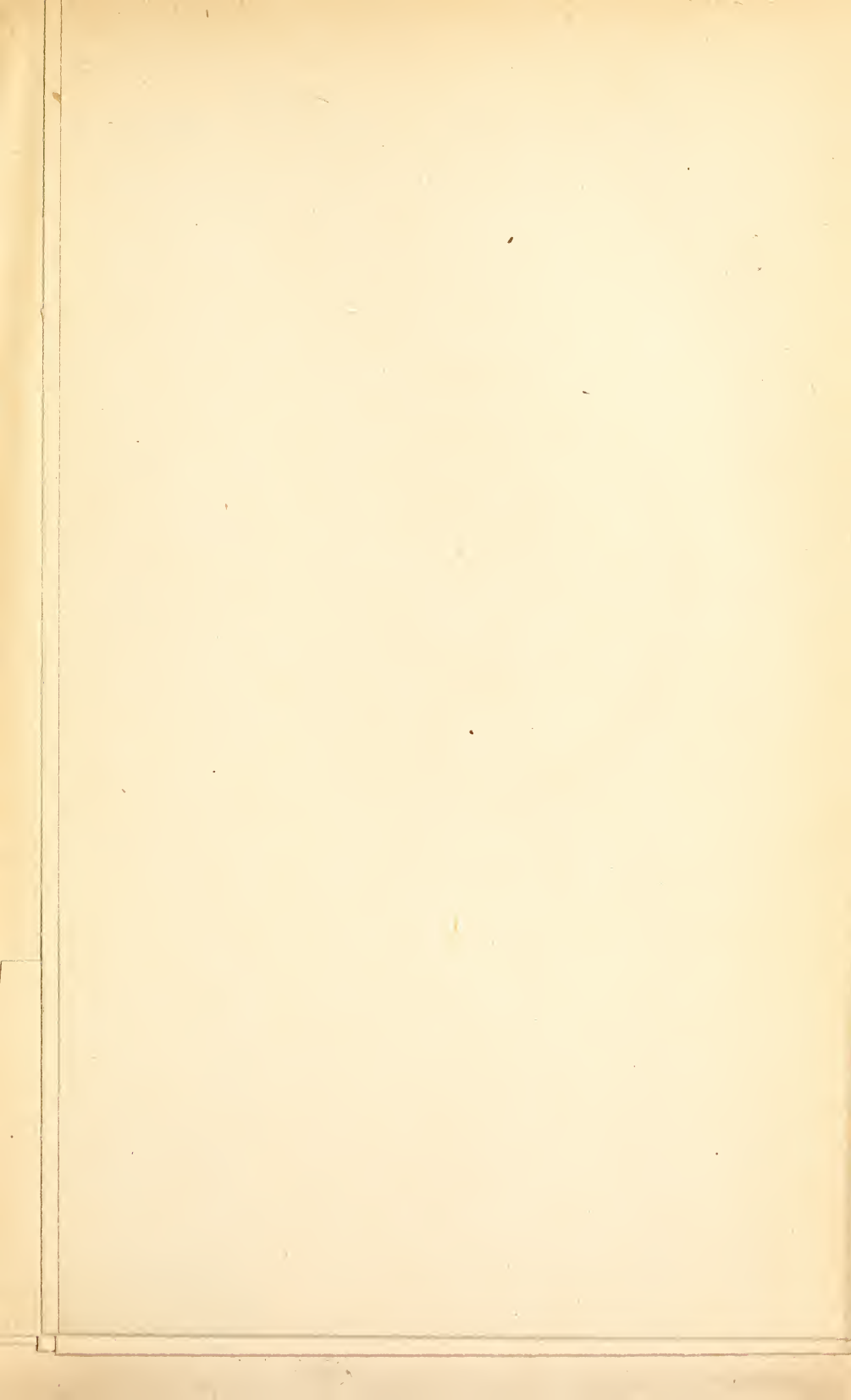
# VI PRICE STATISTICS RYE



Graphic illustration of the price movement for simple average Gold Farm values  
a. Wisconsin b. Minnesota c. Missouri d. Iowa e. Michigan f. Nebraska g. Kansas h. Ohio i. Indiana  
j. Illinois k. California l. Georgia m. Texas n. New York o. Pennsylvania p. Virginia q. Kentucky u. the Nation  
Corrected average Gold Farm values. r. ten states, s. seven states, t. seventeen states.  
Each perpendicular space represents three cents a bushel. The price per bushel, in cents, at the beginning and end of each period, given in the margin.



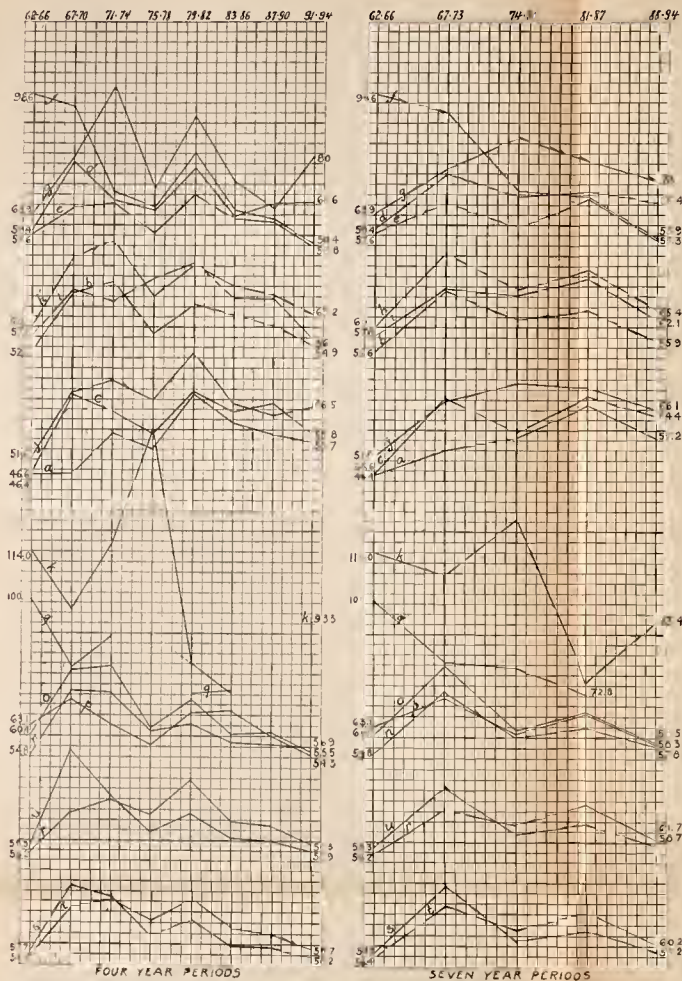






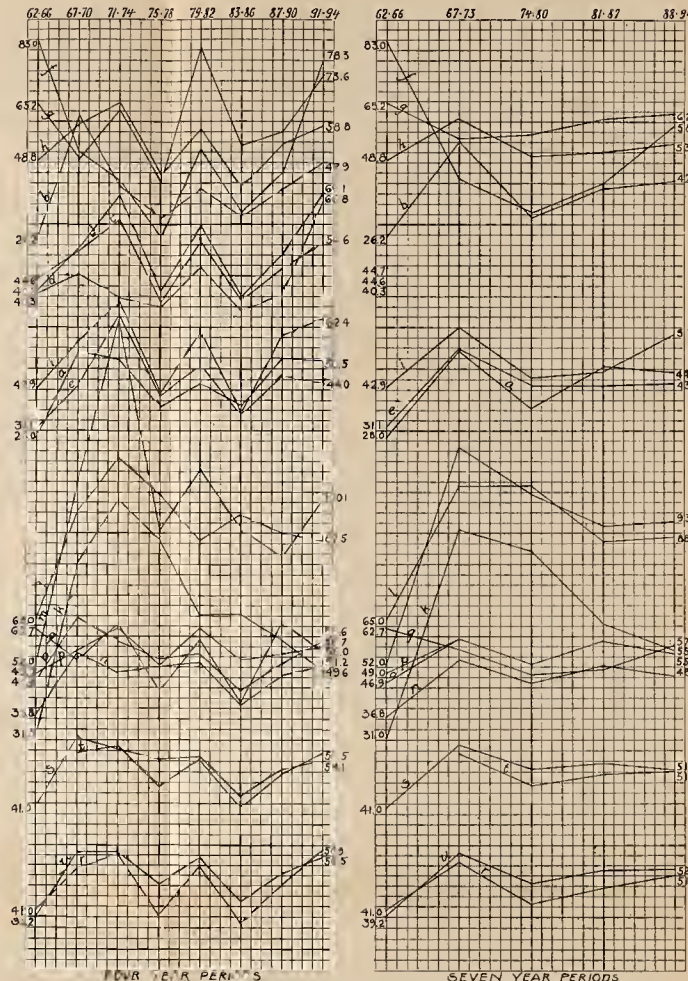


## VII PRICE STATISTICS BUCKWHEAT



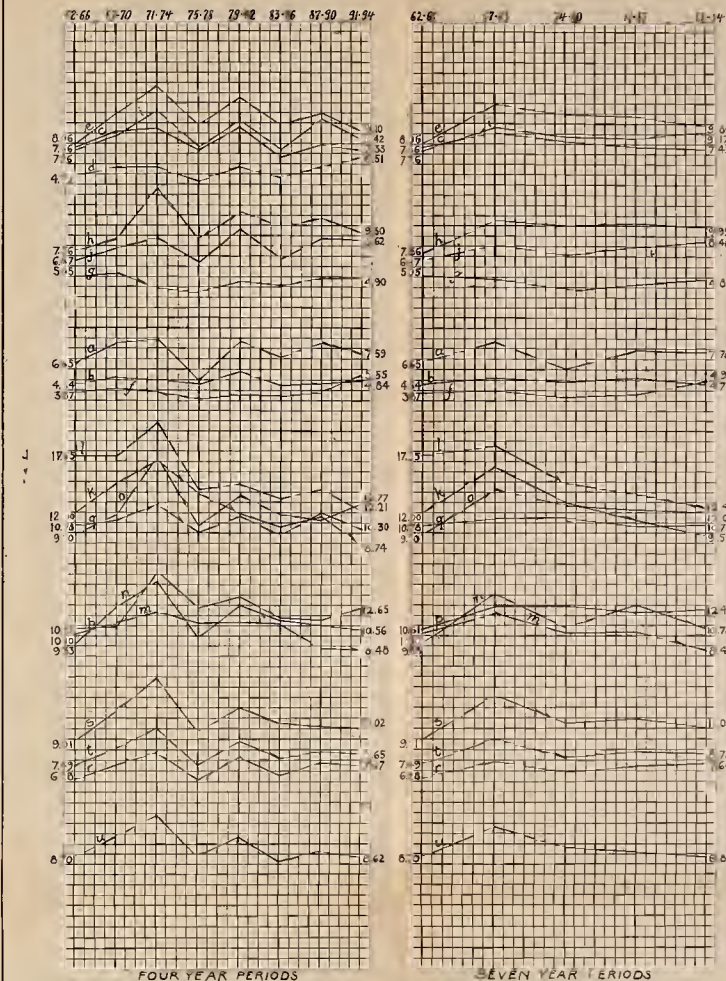
Graphic illustration of the price movement for simple average Gold Farm values  
a Wisconsin b Minnesota c Missouri d Iowa e Michigan f Nebraska g Kansas h Ohio i Indiana  
j Illinois k California l Georgia m Texas n New York o Pennsylvania p Virginia q Kentucky u Nation  
Corrected average Gold Farm values r ten states s seven states t seventeen states  
Each perpendicular space represents three cents a bushel. The price per bushel  
in cents at the beginning and end of each period, given in the margin.

## VIII PRICE STATISTICS POTATOES



Graphic illustration of the price movement for simple average Gold Farm values  
a Wisconsin b Minnesota c Missouri d Iowa e Michigan f Nebraska g Kansas h Ohio i Indiana j Illinois  
k California l Georgia m Texas n New York o Pennsylvania p Virginia q Kentucky u Nation  
Corrected average Gold Farm values r ten states s seven states t seventeen states  
Each perpendicular space represents three cents a bushel. The price per bushel  
in cents at the beginning and end of each period, given in the margin.

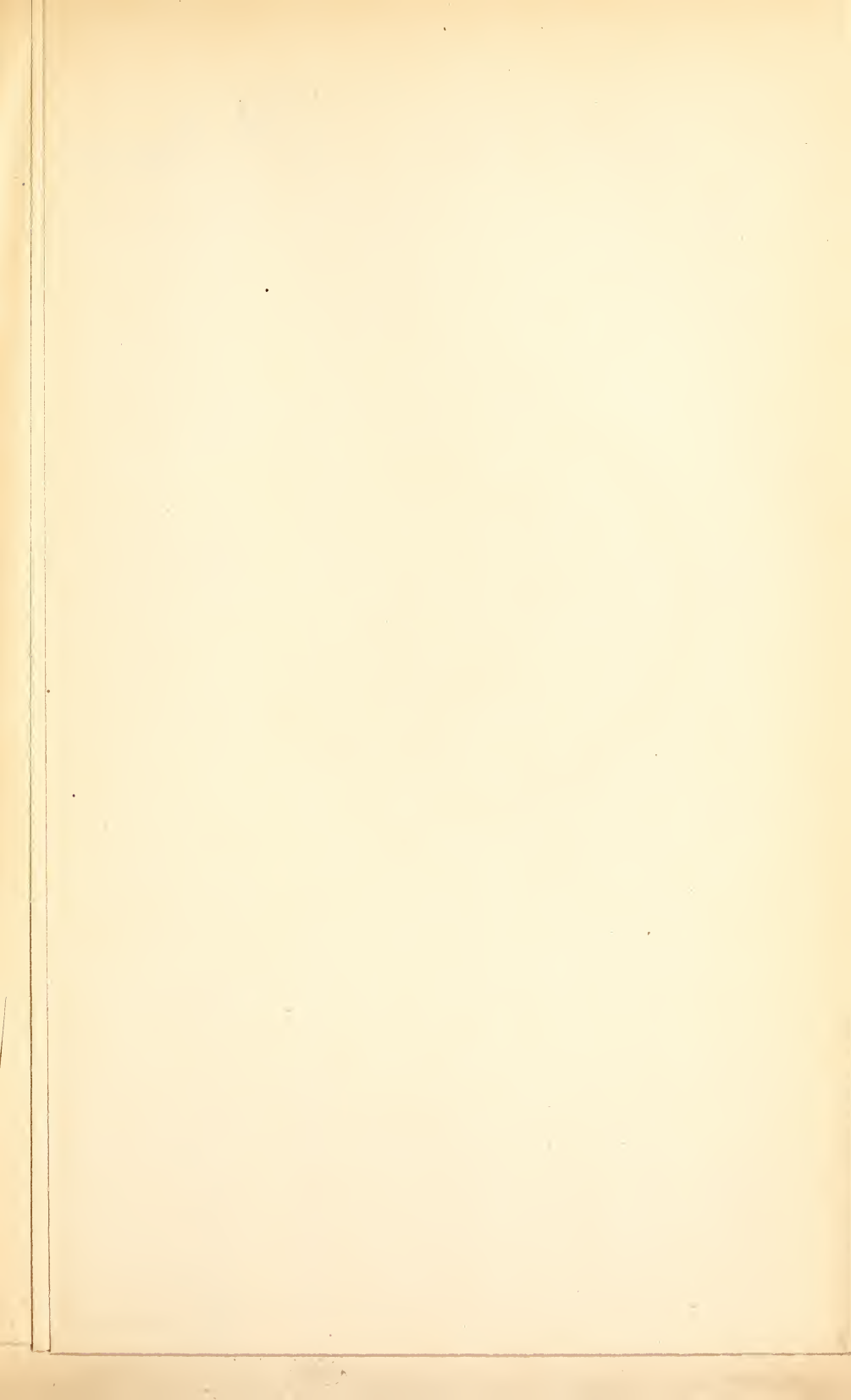
## IX PRICE STATISTICS HAY



Graphic illustration of the price movement for simple average Gold Farm values  
a Wisconsin b Minnesota c Missouri d Iowa e Michigan f Nebraska g Kansas h Ohio i Indiana  
j Illinois k California l Georgia m Texas n New York o Pennsylvania p Virginia q Kentucky u Nation  
Corrected average Gold Farm values r ten states s seven states t seventeen states  
Each perpendicular space represents one dollar a ton. The price per ton in  
dollars at the beginning and end of each period, given in the margin.



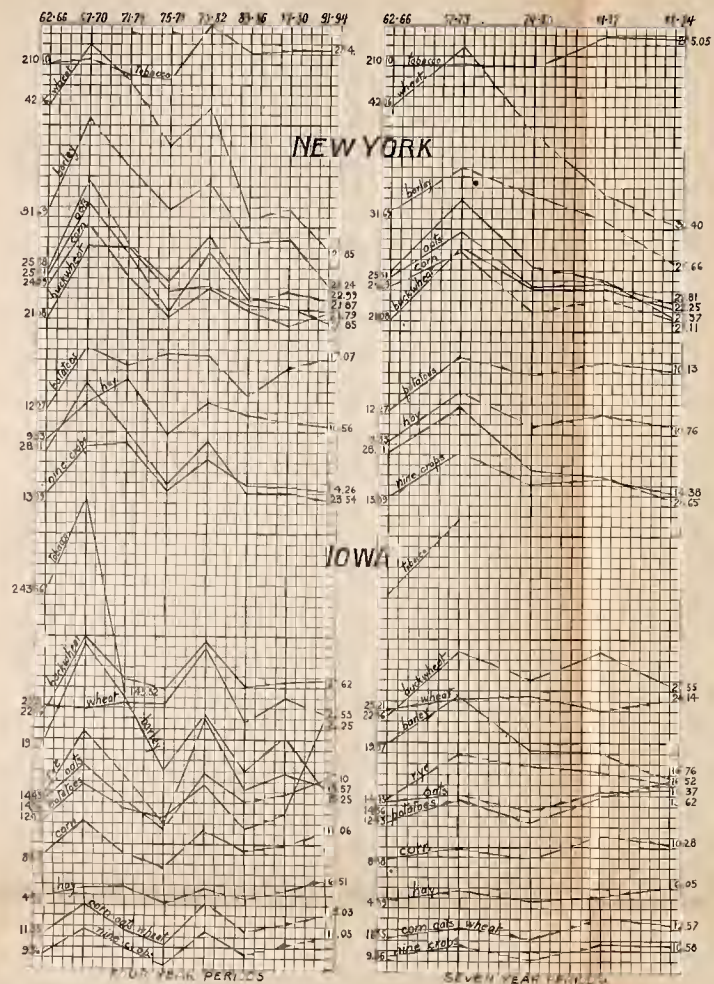






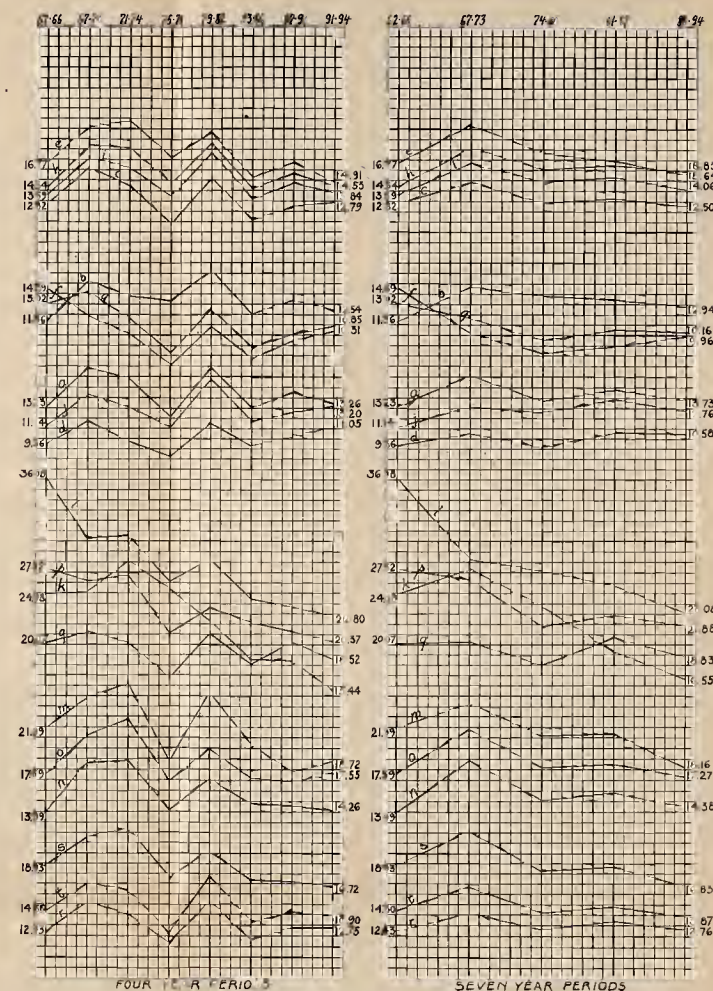


# X PRICE STATISTICS NINE CROPS



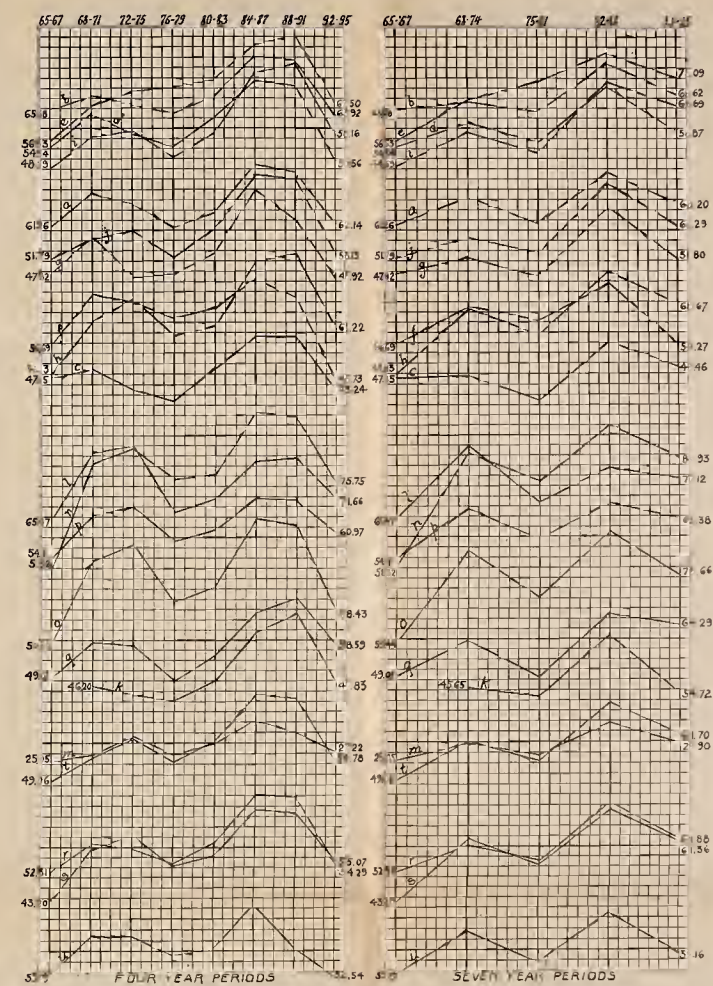
Graphic illustration of the price movement. Simple average Gold Farm values for all single crops. Corrected average Gold Farm values for three crop and nine crop groups. Each perpendicular space represents one dollar per ton, except for tobacco, for which each perpendicular space represents ten dollars per ton. The price per ton in dollars at the beginning and end of each period given in the margin.

# XI PRICE STATISTICS TEN CROPS



Graphic illustration of the price movement for corrected average Gold Farm values. a, Wisconsin. b, Minnesota. c, Missouri. d, Iowa. e, Michigan. f, Nebraska. g, Kansas. h, Ohio. i, Indiana. j, Illinois. k, California. l, Georgia. m, Texas. n, New York. o, Pennsylvania. p, Virginia. q, Kentucky. r, ten states. s, seven states. t, seventeen states. Each perpendicular space represents one dollar per ton. The price in dollars at the beginning and end of each period, given in the margin.

# XII PRICE STATISTICS HORSES



Graphic illustration of the price movement for simple average Gold Farm values. a, Wisconsin. b, Minnesota. c, Missouri. d, Iowa. e, Michigan. f, Nebraska. g, Kansas. h, Ohio. i, Indiana. j, Illinois. k, California. l, Georgia. m, Texas. n, New York. o, Pennsylvania. p, Virginia. q, Kentucky. r, the Nation. Corrected average Gold Farm values. s, ten states. t, seven states. u, seventeen states. Each perpendicular space represents three dollars. The price in dollars at the beginning and end of each period, given in the margin.





to 1894, or other groups of years the value of the crops in cents per bushel or dollars per ton, and for live stock the dollars per head at which the various animals sold for on an average in the given periods of time with which the tables opened and closed. Separate plates are given for corn, oats, wheat, barley, rye, buckwheat, potatoes, hay, horses, mules, cows, oxen, sheep, and swine. In addition to these individual plates for separate crops and animals there are presented four other plates for various combinations of the same, as follows:

Plate IV. presents for each of the seventeen states and for the groups of ten, seven, and seventeen, and for the nation the simple and corrected average values per ton of the combined crops of corn, oats, and wheat. The arrangement of data on this plate is substantially the same as for the crops and animals above referred to by name and for which separate plates are given.

Plate X. presents an exhibit for the States of New York and Iowa of the relative price movement in those states of the gold farm values per ton of the nine crops of corn, oats, wheat, rye, barley, buckwheat, hay, potatoes, and tobacco. This plate shows the greater relative price decline in the seaboard than in the interior states for such crops as wheat, barley, rye, etc. As no other single plate does, it pictures the effect of changing railway rates upon actual and relative prices in the different sections of the country.

Plate XI. presents an exhibit for seventeen states and the groups of ten, seven, and seventeen states of the corrected average values for the nine crops, corn, oats, wheat, rye, barley, buckwheat, hay, potatoes, and tobacco, and also one line showing the average price movement for the seventeen states of the combination of these nine crops with cotton. The plate for the nine crops show lines from 1862 to 1894, and for the ten crops only from 1867 to 1894.

Plate XVIII. differs from all the others in that it illustrates the average price movement, not by giving for each period the actual simple or corrected average values per bushel, ton, or animal, but by presenting an exhibit of that movement by the relative figures of index numbers calculated according to relative importance. This plate by such numbers illustrates the relative price movement for a combination of all crops and all live stock. For the ten, seven, and seventeen states it gives a line each, showing the relative price movement by index numbers according to relative importance of the combined nine crops, excluding cotton. It also gives for the seventeen states a line showing the same facts for the ten crops, including cotton. For each of the groups of ten, seven, and seventeen states this plate gives two lines, one showing

the relative price movement of live stock equal in numbers to all those reported by the Agricultural Department. The other line in each case represents for the given group the price movement of a number of swine equal to the total of those reported by the Agricultural Department in combination with one-half those of sheep, one-fifth those of cows, and one-eighth those of horses and mules. This same plate in lines (k), (l), and (m) gives the relative price movement of the nine crops in the groups of ten, seven, and seventeen states when combined with the values of the live stock in the reduced proportions already stated.

#### THE EFFECT OF THE PANIC OF 1893 UPON PRICES

is shown upon Plate XVIII. in a series of lines to the extreme right of the plate. For all other plates the graphic lines end with a dark perpendicular line, representing the average gold farm values of 1891 to 1894 or 1888 to 1894. This Chart XVIII. has for all the lines an extension from that perpendicular line to points one line further to the right. Those points show the average relative price by index numbers for the year 1895. Every line drops from twenty to thirty per cent from the average of the seven years ending with 1894 to the average for 1895. The drop for this last year measures the intensity of the depression in prices of farm products and live stock that has followed and resulted from the panic of 1893. It should be noted that the fall shown on this plate is a price decline from the average of the seven years ending with 1894, not such a decline from the year 1894 itself. Prices declined on an average from 1893 and not from 1894, as would appear if the distinction between the average of seven years ending with 1894 from the figures of that year is not noticed.

## ERRATA.

Page 58.—The gold value for corn in Illinois for 1862 should be \$5.84 per ton.

Page 71.—The index number according to relative importance for 1868 to 1873 should be 131.

Page 83.—The index numbers by method of this report in table should read, 116, 127, 112, 117, and 113.

Page 130.—In Table (k) corrected figures for index numbers second column are 93, 97, 98, 91, and 96; for last column, 92, 97, 97, 91, and 96.

Page 155.—Insert decimal point between second and last figures in column for corrected average values.

Pages 174, 175, and 176 for correct index numbers to corrected average value in column in tables marked (2), and for all the figures in Table E, page 178, see the table in this section for corrected index numbers for pages 91, 100, 148, 150, 187, 193, and 195.

Page 216.—For 1875 to 1878 the corrected average value per ton should be \$12.67; per bushel, \$0.038; per ton in column showing effect of railway rates, \$21.35; index numbers for column (2) 95, for column (3) 94.

Page 304.—For 1862 to 1866 the corrected average value per ton should be \$12.67; per bushel, \$0.038; per ton in column showing effect of railway rates, \$9.53; and index numbers for column (2) 93, and for column (3) 100.

Page 312.—For 1862 to 1866 the corrected average value per ton should be \$13.18; per bushel, \$0.395, and per ton in column showing effect of changing railway rates, \$8.90; the index number for column (2) 78, and for column (3) 96.

The following errors are due to two mistakes in copying the figures for corrected average values for 1872 on pages 91 and 148:

1. Mistakes in corrected average gold values per ton for 1872, corrected figures to read, page 91, \$13.78; page 100, \$16.81; page 148, \$42.05; page 150, \$36.85; page 187, \$13.95; page 193, \$24.00; page 195, \$16.16.



2. Mistakes in corrected average gold farm values per bushel for 1872. Corrected figures to read, page 91, \$0.220; page 100, \$0.269; page 148, \$1.262, and page 150, \$1.106.

3. Mistakes in average gold value per ton after allowance is made for influence of changing railway rates, correct figures to read for 1872, page 91, \$9.97; page 100, \$12.47; page 148, \$27.18; page 150, \$25.26; page 187, \$11.02; page 193, \$16.94; and page 195, \$12.32.

4. For the index numbers given for corrected average values and those allowing for influence of changing railway rates with head-lines corresponding to columns (2) and (3), substitute the following:

YEARS.	CORRESPONDING TO COLUMN (2).							CORRESPONDING TO COLUMN (3).						
	Page 91	Page 100	Page 148	Page 150	Page 187	Page 193	Page 195	Page 91	Page 100	Page 148	Page 150	Page 187	Page 193	Page 195
1862-66	133	116	99	84	100	109	109	174	153	93	92	123	114	120
1867-70	157	139	96	90	134	117	128	178	158	92	91	144	126	139
1871-74	136	124	98	91	115	112	114	156	141	94	93	125	115	122
1875-78	111	99	88	82	99	94	97	121	110	94	93	109	107	110
1879-82	157	135	89	92	132	109	124	179	160	113	114	155	132	148
1883-86	121	107	69	68	100	90	91	151	138	87	86	118	113	116
1887-90	126	110	68	72	106	88	100	161	145	96	95	130	118	127
1891-94	137	116	58	60	107	86	100	173	155	90	87	135	122	131
1862-94	132	116	80	78	111	99	106	158	144	95	94	129	118	126
1862-66	133	116	99	84	109	109	109	174	153	93	92	123	114	120
1867-73	138	127	100	94	121	115	119	157	143	97	97	130	117	126
1874-80	126	112	88	85	109	99	105	143	131	98	97	125	113	122
1881-87	134	117	73	75	113	93	109	162	146	91	91	136	121	131
1888-94	132	113	63	66	106	86	99	169	152	96	96	132	120	128
1876-78	102	94	80	81	95	88	93	116	110	85	93	106	100	104
1893-95	116	99	48	47	87	73	83	136	125	66	63	106	102	105
1862...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1872...	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1895...	97	84	51	49	74	69	73	117	107	64	57	90	83	88



2. Mistakes in corrected average gold farm values per bushel for 1872. Corrected figures to read, page 91, \$0.220; page 100, \$0.269; page 148, \$1.262, and page 150, \$1.106.

3. Mistakes in average gold value per ton after allowance is made for influence of changing railway rates, correct figures to read for 1872, page 91, \$9.97; page 100, \$12.47; page 148, \$27.18; page 150, \$25.26; page 187, \$11.02; page 193, \$16.94; and page 195, \$12.32.

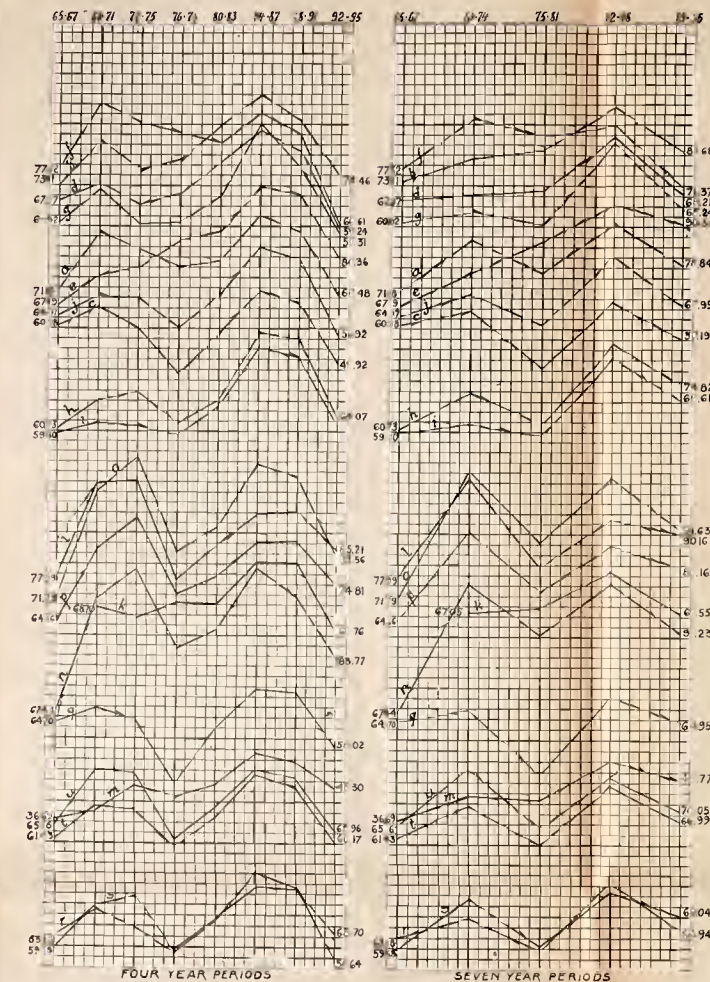
4. For the index numbers given for corrected average values and those allowing for influence of changing railway rates with head-lines corresponding to columns (2) and (3), substitute the following:

YEARS.	CORRESPONDING TO COLUMN (2).							CORRESPONDING TO COLUMN (3).						
	Page 91	Page 100	Page 148	Page 150	Page 187	Page 193	Page 195	Page 91	Page 100	Page 148	Page 150	Page 187	Page 193	Page 195
1862-66	133	116	99	84	100	109	109	174	153	93	92	123	114	120
1867-70	137	139	96	90	134	117	128	178	158	92	91	144	126	139
1871-74	136	124	98	91	115	112	114	156	141	94	93	125	115	122
1875-78	111	99	88	82	99	94	97	121	110	94	93	109	107	110
1879-82	157	135	89	92	132	109	124	179	160	113	114	155	132	148
1883-86	121	107	69	68	100	90	91	151	138	87	86	118	113	116
1887-90	126	110	68	72	106	88	100	161	145	96	95	130	118	127
1891-94	137	116	58	60	107	86	100	173	155	90	87	135	122	131
1862-94	132	116	80	78	111	99	106	158	144	95	94	129	118	126
1862-66	133	116	99	84	109	109	109	174	153	93	92	123	114	120
1867-73	138	127	100	94	121	115	119	157	143	97	97	130	117	126
1874-80	126	112	88	85	109	99	105	143	131	98	97	125	113	122
1881-87	134	117	73	75	115	93	109	162	146	91	91	136	121	131
1888-94	132	113	63	66	106	86	99	169	152	96	96	132	120	128
1876-78	102	94	80	81	95	88	93	116	110	85	93	106	100	104
1893-95	116	99	48	47	87	73	83	136	125	66	63	106	102	105
1862...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1872...	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1895...	97	84	51	49	74	69	73	117	107	64	57	90	83	88



XIII

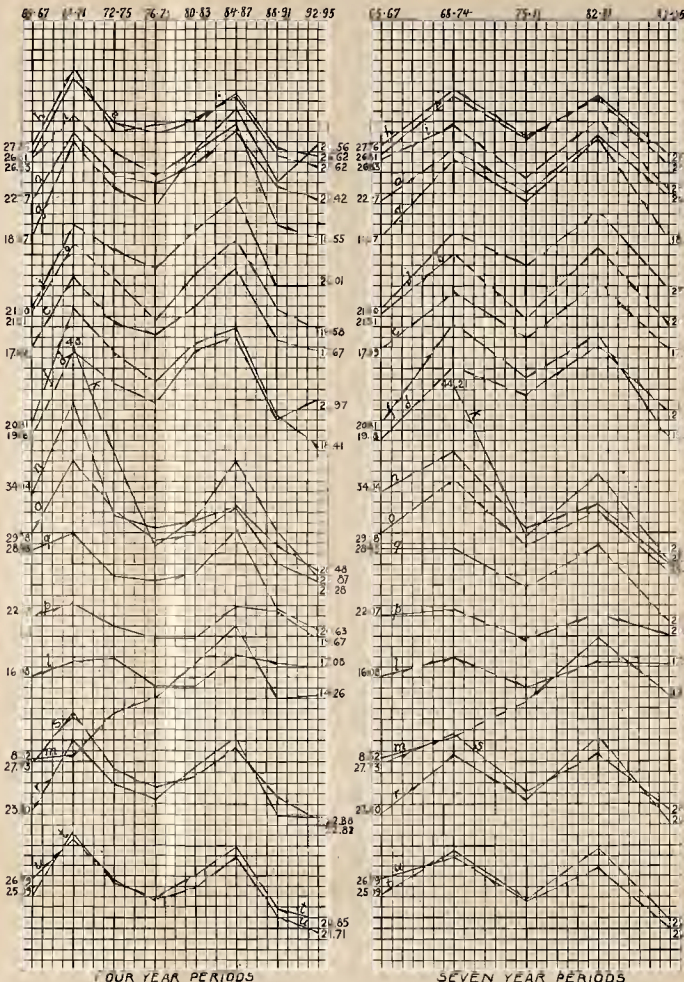
## PRICE STATISTICS MULES



Graphic illustration of the price movement for simple average Gold Farm values.  
 a. Wisconsin, b. Minnesota, c. Missouri, d. Iowa, e. Michigan, f. Nebraska, g. Kansas, h. Ohio, i. Indiana,  
 j. Illinois, k. California, l. Georgia, m. Texas, n. New York, o. Pennsylvania, p. Virginia, q. Kentucky, u. the Nation.  
 Corrected average Gold Farm values, r. ten states, s. seven states, t. seventeen states.  
 Each perpendicular space represents three dollars. The price in dollars at the beginning and end of each period given in margin.

XIV

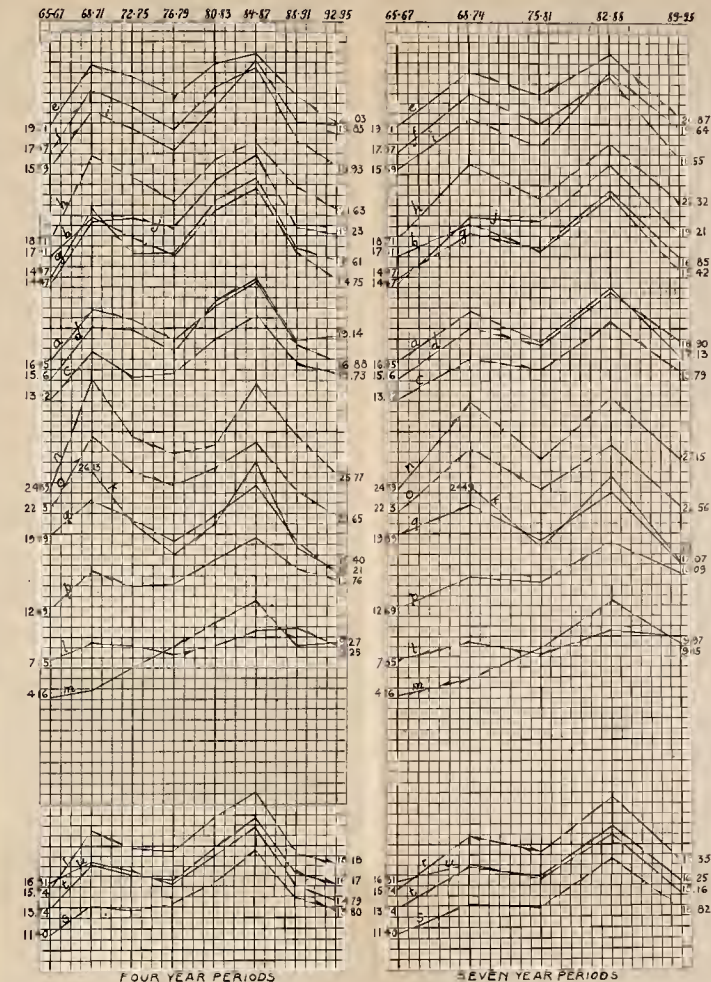
## PRICE STATISTICS MILCH COWS



Graphic illustration of the price movement for simple average Gold Farm values.  
 a. Wisconsin, b. Minnesota, c. Missouri, d. Iowa, e. Michigan, f. Nebraska, g. Kansas, h. Ohio, i. Indiana,  
 j. Illinois, k. California, l. Georgia, m. Texas, n. New York, o. Pennsylvania, p. Virginia, q. Kentucky, u. the Nation.  
 Corrected average Gold Farm values, r. ten states, s. seven states, t. seventeen states.  
 Each perpendicular space represents one dollar. The price in dollars at the beginning and end of each period given in margin.

XV

## PRICE STATISTICS OXEN



Graphic illustration of the price movement for simple average Gold Farm values.  
 a. Wisconsin, b. Minnesota, c. Missouri, d. Iowa, e. Michigan, f. Nebraska, g. Kansas, h. Ohio, i. Indiana, j. Illinois,  
 k. California, l. Georgia, m. Texas, n. New York, o. Pennsylvania, p. Virginia, q. Kentucky, u. the Nation.  
 Corrected average Gold Farm values, r. ten states, s. seven states, t. seventeen states.  
 Each perpendicular space represents one dollar. The price in dollars at the beginning and end of each period given in margin.





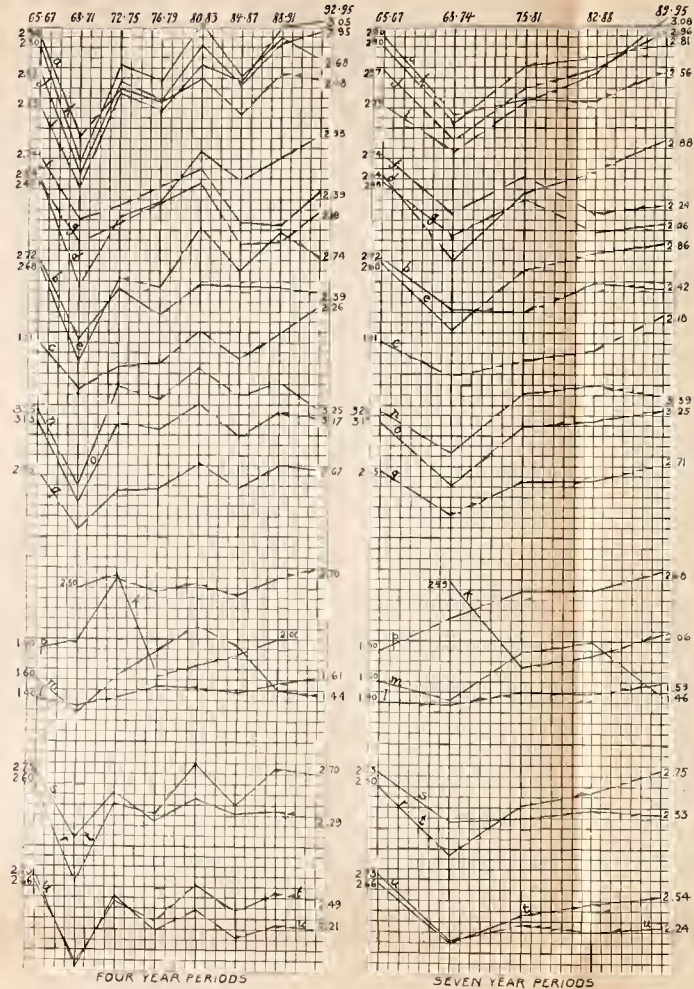






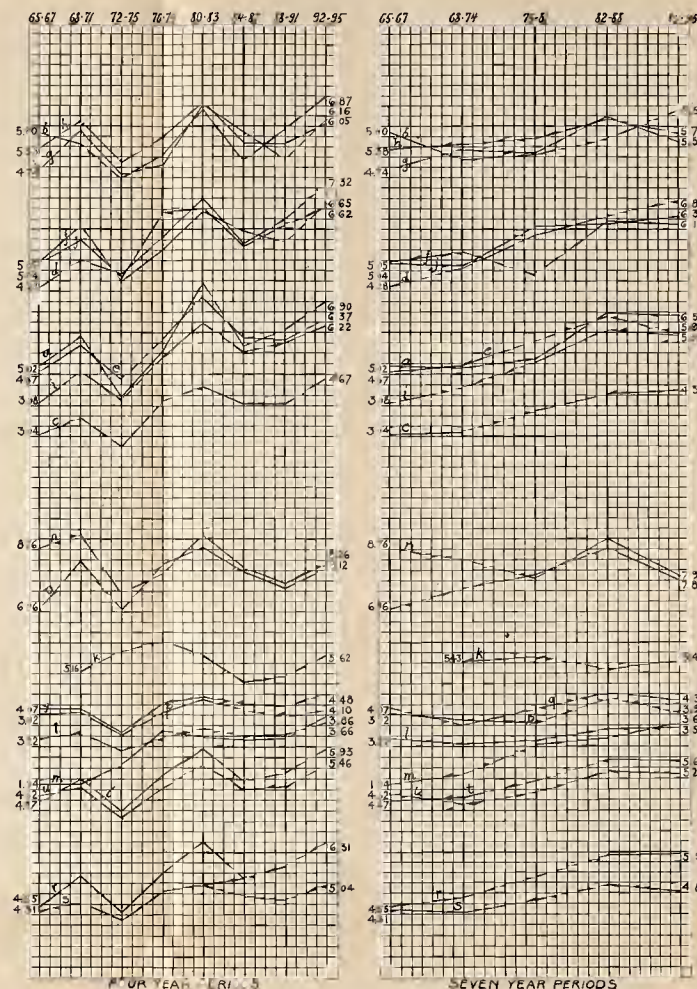
XVI

## PRICE STATISTICS SHEEP



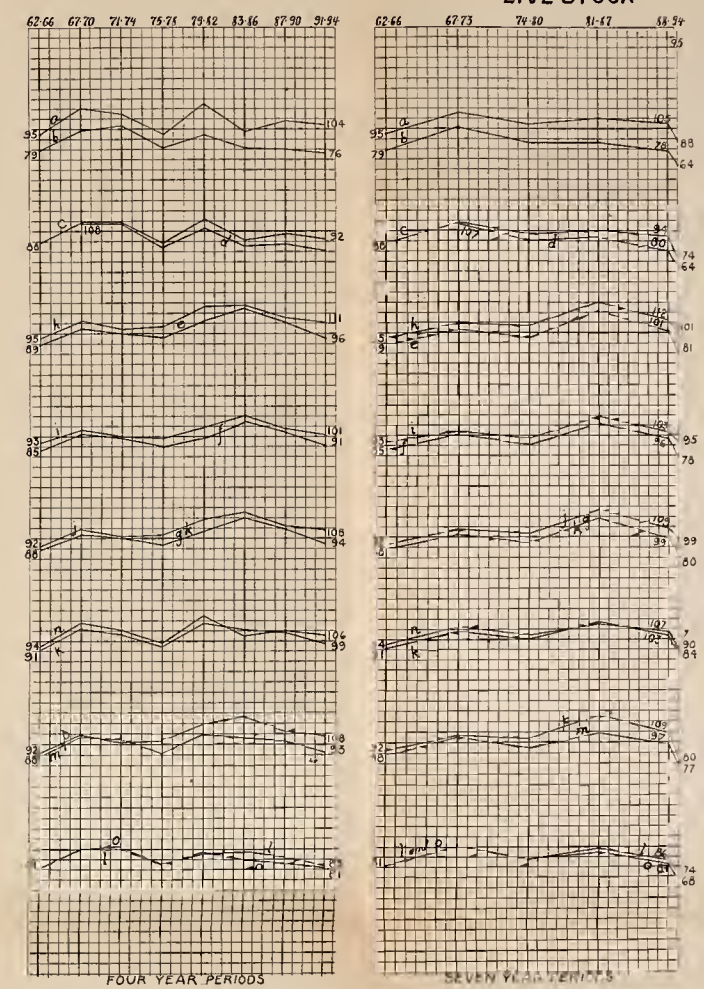
XVII

## PRICE STATISTICS SWINE



XVIII

## PRICE STATISTICS

ALL CROPS  
AND  
LIVE STOCK



1875-1876

## INDEX TO CONTENTS PART I.

Subjects.	Page.
Advance in average farm values.....	332, 468, 508, 520
Agricultural workers, male, number of.....	53
Agricultural workers, amount produced by each .....	412, 413, 416, 425, 520
Animals brought to perfection each year.....	436
Average values .....	39, 56, 218, 372, 511
Barley .....	216, 283, 372
Buckwheat .....	262, 283, 372
California..84, 111, 161, 207, 220, 254, 275, 302, 324, 346, 384, 398, 472, 475, 478, 480, 883	
Causes affecting price variations.....	26, 33, 60, 125, 133
Cheap lands, shifting of grain fields to.....	55
Chicago wheat prices.....	174
Comparisons with report of United States senate committee's report.....	518, 521
Contents, table of.....	19
Corn, Indian .....	55, 69, 189, 283, 372
Corn, oats, and wheat.....	189
Corn, oats, wheat, barley, buckwheat, and rye .....	283
Corrected average values.....	40, 56, 80, 87, 89, 143, 375, 376, 410, 468, 508, 534
Corrected average values, imperfections of.....	376
Cost of production and transportation and prices..26, 47, 49, 50, 64, 78, 85, 95,	
187, 188, 194, 217, 241, 263, 287, 383, 385, 419, 223	411, 620
Cost of production.....	406, 419, 420, 515
Cotton .....	430, 444, 462, 475, 491, 504
Cows, milch .....	35
Crops in the United States, information concerning .....	37
currency and gold values.....	25, 31
Currency, tariff legislation, and price variations .....	138
Customs tariffs of other nations and prices.....	35, 51, 406, 496, 509, 518
Data used in this report.....	171, 284, 372, 379, 406, 418, 419, 520
Decline of prices.....	518
Defective data used in this report.....	27, 31, 50, 60, 96, 216, 263, 406
Demand and supply and prices.....	37, 41, 50, 60, 96, 216, 263, 406
Demand and supply and purchasing power of money.....	400
Discontent of American farmers.....	29
Effect of changing supply of gold and silver upon prices overestimated.....	539
Errata .....	187
Export of wheat.....	90, 118, 168, 213, 235, 259, 261, 280, 307, 329, 351, 403, 423, 421
Exterior states, group of...90, 118, 168, 213, 235, 259, 261, 280, 307, 329, 351, 403, 423, 421	
Fall in wheat prices.....	131, 137
Farmers' income and silver legislation.....	78, 378
Farmers' income, changing.....	412, 413, 416, 423, 496, 520
Farmers and changing prices.....	410
Farm staples and live stock, prices compared.....	437
Foreign demand for farm products, and prices.....	61, 138, 139, 187, 418
Four central states and wheat prices.....	171
Georgia.....83, 110, 160, 206, 239, 253, 301, 323, 345, 364, 384, 397, 471,	
474, 479, 482	27, 28, 29
Gold and silver, supply of and prices.....	27, 28, 29

Subjects.	Pages.
Gold and currency values.....	37
Graphic plates.....	53, 536
Gold, purchasing power of.....	518, 521, 524
Hard spring wheat, prices of.....	129, 130, 177, 180, 184
Hay.....	332, 372
High prices of 1867 to 1874.....	62, 135, 216, 285, 310, 379, 380, 417, 418, 438, 520
High prices of 1879 to 1882.....	61, 67, 36, 216, 284, 379, 380, 409, 417, 418, 438
High and low prices.....	216, 438, 520
Hogs.....	432, 449, 463, 486, 493, 505
Horses.....	427, 439, 461, 470, 484, 488, 503
Illinois.....	48, 69, 73, 101, 149, 192, 197, 220, 224, 266, 292, 314, 336, 356, 384, 389, 440, 445, 450, 457
Improved methods of breeding and feeding live stock.....	497
Index numbers.....	40, 42, 63
Index numbers according to relative importance.....	45, 63, 80, 87, 89, 98, 218, 242, 288, 333, 388, 410, 468, 507, 525
Index numbers, certain worthless, as measures of price movement.....	435, 509
Index numbers, comparison of different, 63, 80, 87, 89, 98, 218, 242, 288, 333, 428, 468, 535	
Index numbers for live stock.....	454
Index numbers, incorrect, for 1862 to 1866.....	289, 372, 508
Index numbers, limitations of.....	42, 46, 372
Indian corn.....	55, 69, 189, 283, 372
Indiana.....	72, 100, 148, 196, 219, 243, 265, 291, 313, 335, 355, 387, 439, 444, 449, 456
Iowa.....	48, 69, 75, 103, 142, 152, 171, 187, 192, 200, 222, 246, 268, 294, 316, 338 358, 384, 363, 442, 447, 452, 459.
Kansas.....	77, 94, 154, 171, 199, 224, 248, 270, 296, 318, 340, 360, 392, 443, 448, 453, 460
Kentucky.....	82, 109, 159, 205, 228, 252, 274, 300, 322, 344, 363, 396, 471, 474, 477, 480, 482
King's, Gregory, law of prices.....	31, 65, 69, 311
Labor the only measure of value.....	524
Labor, purchasing power of.....	523, 524
Labor, return for agricultural.....	407, 413, 416, 425, 520, 521, 524
Law governing bureau of labor.....	4
Law governing price changes.....	31, 65, 69, 311, 334
Letter of transmittal.....	2
Live stock.....	37, 426, 433, 456, 465, 476, 494, 498, 527
Live stock, index numbers for.....	454, 479, 501
Live stock, improved methods of breeding and feeding.....	497
Live stock brought to perfection each year.....	436, 509
Live stock values as a check upon other price statistics.....	427
Local causes for price changes.....	60, 125, 419, 523
Local prices of wheat in Minnesota.....	184, 185
Low and high prices.....	216, 520
Market quotations and government estimates.....	124, 184
Michigan.....	74, 101, 150, 198, 221, 255, 266, 293, 315, 337, 357, 393, 440, 445, 450, 457
Milling inventions and wheat prices.....	128, 132, 419
Milch cows.....	430, 444, 462, 485, 491, 504
Minnesota prices of wheat.....	184, 185
Minnesota.....	76, 103, 153, 171, 201, 223, 247, 269, 295, 317, 339, 359, 391, 441, 447, 452, 459
Mississippi Valley, rise of prices in.....	189, 283
Missouri.....	75, 102, 151, 199, 223, 246, 267, 294, 316, 338, 358, 390, 441, 446, 451, 458
Mules.....	429, 439, 461, 470, 484, 490, 503
Nebraska.....	77, 104, 153, 171, 201, 224, 247, 269, 296, 318, 340, 360, 392, 443, 448, 453, 460
New York.....	81, 108, 158, 204, 227, 251, 273, 299, 321, 343, 362, 384, 395, 470, 473, 476, 479, 481
New process of milling wheat.....	129
Nine crops in combination.....	372, 525, 529, 532
Oatmeal and wheat prices.....	137
Oats.....	84, 189, 283, 372
Ohio.....	70, 100, 148, 196, 219, 243, 265, 291, 313, 335, 355, 387, 439, 444, 449, 456
Oxen and other cattle.....	430, 444, 462, 485, 492, 504
Panic of 1893 and prices.....	62, 67, 69, 138, 290, 311, 539
Per capita and prices.....	66, 93, 97, 120, 170, 187, 194, 215, 217, 237, 239, 263, 282, 285, 309, 311, 331, 334, 353, 371, 381, 405, 407, 423

Subjects.	Pages.
Pennsylvania...82, 109, 159, 205, 228, 252, 274, 300, 322, 344, 363, 384, 396, 470,	473, 476, 479, 481
Periods of time, long and short.....	57
Population, number of.....	53
Potatoes .....	310, 372
Power, purchasing, of labor.....	523
Precious metals, supply and prices.....	27, 28, 29
Precious metals, and purchasing power of money .....	27, 28, 29
Prices and changes in cost of transportation and production....26, 47, 49, 50, 64, 78, 85, 95, 187, 188, 194, 217, 241, 263, 287, 383, 385, 419, 523	
Prices, and supply and demand.....	27, 31, 50, 60, 96, 216, 263, 406
Prices and per capita product..66, 93, 97, 120, 170, 187, 194, 215, 217, 237, 239, 263, 282, 285, 309, 311, 331, 334, 353, 371, 381, 405, 407, 423	
Prices and the panic of 1893.....	62, 67, 69, 138, 290, 311
Prices and changing foreign demand for farm products.....	61, 138, 139, 187, 418
Prices and the supply of precious metals.....	27, 28, 29
Prices, causes affecting.....	26, 33, 60
Price changes, law regulating.....	31, 65, 69, 311, 334
Prices, advance of.....	189, 283, 379, 418, 511
Prices, decline of.....	191, 284, 372, 379, 406, 418, 419, 512
Prices of wheat and milling inventions.....	128
Prices of hard spring wheat.....	129, 130, 173, 174
Prices of corn.....	59
Prices of grain and new sources of supply.....	55
Prices of farm staples and live stock compared .....	437
Purchasing power of human labor.....	523, 524
Railway rates of transportation.....	523
Reciprocity laws and prices.....	138
Report, data used in this.....	35, 51, 406
Rise of prices.....	189, 293, 379, 418
Rogers, Prof. James E. Thorold, and prices.....	32
Russian wheat growing.....	134
Rye .....	238, 283, 372
Sauerbeck, Mr., and price investigations.....	30, 46
Seaboard states, decline of prices in.....	191, 284, 419, 523
Seaboard states, effect of Western competition upon, how to prevent.....	460
Senate, United States, committee's investigation report, comparisons with.....	518, 521
Seven states, group of...36, 53, 81, 86, 113, 163, 191, 208, 231, 255, 276, 303, 325, 347, 366, 399, 414, 465, 512, 519, 523, 525, 526, 527	
Seventeen states, group of...36, 88, 115, 165, 210, 233, 257, 278, 305, 327, 349, 367, 401, 409, 416, 424, 514, 525, 526, 528	
Prices of farm products, rise of.....	189, 283, 379, 418, 511
Prices of, periods of high.....62, 135, 136, 216, 284, 285, 310, 379, 380, 409, 417, 418, 438	
Prices, stability of.....	70, 94, 192, 262, 311, 418
Prices and wages.....	34
Price statistics, checks upon.....	427
Price statistics and the silver question.....	30
Price variations, and tariff and currency legislation .....	25, 31
Production and transportation, change in cost and prices..23, 47, 49, 50, 64, 78, 85, 95, 187, 188, 194, 217, 241, 263, 287, 373, 375, 419	
Productivity of labor on the farms, increase of .....	413, 416, 425
Purchasing power of gold.....	518, 521, 523, 524
Purchasing power of money, and supply and demand....27, 31, 50, 60, 96, 216, 263, 406	
Purchasing power of money, and the supply of precious metals .....	27, 28, 29, 31
Sheep .....	431, 449, 463, 486, 492
Silver and gold and purchasing power of money.....	27, 28, 29
Silver and gold, supply of and prices.....	27, 28, 29
Silver and price statistics.....	30
Silver legislation and farmers' income.....	68, 378
Silver legislation of 1873 and prices.....	25, 31, 99, 123, 419
Sources of grain supply, new, and prices.....	55
Spring and winter wheat contrasted.....	127, 144, 173, 174
Stability of prices.....	70, 94, 192, 262, 311, 418



Subjects.	Pages.
Statistics of prices and the silver question.....	30
Statistics of prices, checks upon.....	427
Supply and demand and prices.....	27, 31, 50, 60, 96, 216, 263, 406
Supply and demand, and purchasing power of money.....	27, 31, 50, 60, 96, 216, 263, 406
Swine .....	423, 449, 463, 476, 493
Tables, arrangement of.....	53
Tariff and currency legislation, and price variations .....	25
Ten crops.....	400, 526, 531
Ten states, group of...36, 54, 79, 106, 156, 190, 202, 225, 249, 271, 297, 319, 341,	361, 393, 410, 456, 461, 511, 523, 525, 526
Texas.....	84, 110, 161, 207, 230, 254, 302, 324, 346, 365, 398, 472, 475, 478, 480, 483
Tobacco .....	354, 372
Transportation, changes in cost of, and prices..26, 47, 49, 50, 62, 78, 85, 95,	187, 188, 194, 217, 241, 263, 287, 383, 385, 419
United States..92, 119, 169, 214, 236, 260, 281, 308, 330, 352, 370, 404, 416, 422, 498, 514	
Virginia..83, 109, 160, 206, 229, 253, 275, 301, 321, 345, 364, 384, 396, 471, 474, 477, 479, 482	
Wages and prices.....	34, 521
Western farmers and wheat prices.....	140
Wheat .....	121, 189, 283, 372
Wheat prices and silver legislation.....	123
Wheat prices and milling inventions.....	128, 132, 419
Wheat prices and oatmeal.....	137
Wheat prices in Minnesota, Iowa, Nebraska, and Kansas .....	171
Wheat growing in Russia.....	134
Wheat prices, where stable.....	122
Winter wheat, decline in prices.....	126, 137, 145, 172, 174
Winter and spring wheat, prices contrasted.....	127, 144, 173, 174
Wisconsin....74, 102, 151, 198, 221, 245, 267, 293, 315, 337, 357, 389, 441, 446, 451, 458	

FOREST PRESERVATION

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SECOND ANNUAL REPORT

OF THE

CHIEF FIRE WARDEN

OF

MINNESOTA

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UNDER THE ACT OF THE LEGISLATURE ENTITLED  
"AN ACT TO PROVIDE FOR THE PRESERVATION OF FORESTS OF THIS STATE  
AND FOR THE PREVENTION AND SUPPRESSION OF FOREST AND  
PRAIRIE FIRES," APPROVED APRIL 18, 1895.

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FOR THE YEAR 1896.

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ST. PAUL, MINN.:  
PRINTED BY THE PIONEER PRESS COMPANY,  
1897.

STATE OF MINNESOTA,  
OFFICE OF CHIEF FIRE WARDEN,  
ST. PAUL, May 27, 1897. }

*Hon. R. C. Dunn, State Auditor and Forest Commissioner,*

SIR: As required by section 3 of the Act for the Preservation of Forests, etc., approved April 18, 1895, I have the honor to submit, herewith, my annual report for the year 1896.

Very respectfully,

C. C. ANDREWS,  
*Chief Fire Warden.*

# SECOND ANNUAL REPORT

OF THE

## CHIEF FIRE WARDEN

OF MINNESOTA.

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In reviewing operations under the Forest Preservation Act one should bear in mind the very large extent of territory to be protected and the extremely economical plan on which the work has to be done. Fire wardens who have to be relied upon to take precautions to prevent the setting of forest and prairie fires, and to extinguish such fires if they occur, are paid for not exceeding fifteen days' service in a year and at the rate of two dollars per day. It is very seldom that a fire warden is paid for half that number of days. Their helpers can be paid for not more than five days in a year at the rate of one dollar and fifty cents a day. Two-thirds of the expenses are borne by the county in which they are incurred and the state pays the other third. But no county can expend, under this law, more than \$500 in a year.

### DANGEROUS SEASON OF 1896.

The matter of most interest during the past year was the very dry and dangerous weather which prevailed in the Lake Superior region during most of the months of August and September. It was just the same sort of weather which



prevailed in Northern Michigan at the same time—a state which had no fire warden service—and where a forest fire caused the destruction of property amounting to several million dollars.<sup>1</sup> The most serious fires which occurred in

<sup>1</sup> *Pioneer Press*, Aug. 26, 1896:

GREEN BAY, WIS., Aug. 25.—Ontonagon, Mich., was destroyed by fire this afternoon. Of the city of about 2,000 population hardly a house is left standing. Among the property destroyed is the extensive plant of the Diamond Match Company and 6,000,000 feet of lumber in their yards. Conservative estimates place the loss at \$1,500,000. No lives were lost at last reports. Communication has been cut off since 5 P. M., and no further news will be possible until morning. The fire had been burning in the woods southwest of the city for two weeks. It was nearly out when a southwest gale yesterday and to-day swept in upon the town. At noon it was seen that the city was doomed. A message was sent to Supt. Minturn, of the St. Paul road at Green Bay, asking for a train to take the people away. The operator who sent the message was driven away from his instrument by the burning of the building. A train was ordered there from Pori, twenty-six miles south. The train reached Ontonagon and took a load of people to Rockland, ten miles away. It left again for Ontonagon for another load and since then nothing has been heard from them. At 5 o'clock the flames had swept through the main part of the city, destroying all the business houses, many residences, the match company's mills, the water works, electric light plant, courthouse, jail, etc. The flames then worked up the river to the rest of the city.

At midnight to-night the entire city is practically in ashes and two thousand people are homeless without clothing or shelter. Of this number 1,500 are in absolute want. The fire has swept away nearly every dwelling house, all stores and other places of business and all the big mills and other manufacturing plants. Whether or not there has been loss of life cannot be learned to-night. If no one perished in the wave of fire that swept from woods to lake it is little short of miraculous.

*Pioneer Press*, Aug. 27:

GREEN BAY, WIS., Aug. 26.—Advices received by railroad officials from stations within a few miles of Ontonagon are to the effect that only fifteen houses are left standing, but that no lives were lost. The heat from the burning mills and lumber was so intense that the people were compelled to seek shelter under trees and driftwood along the lake shore. Many walked to Rockland, fifteen miles away. There are about 1,800 men, women and children without food or shelter. Many are insufficiently clothed, and they suffered severely last night.

The Diamond Match Company lost two fine saw mills, having a daily capacity of 450,000 feet, and other mills and buildings worth in all nearly \$2 000,000 and lumber worth nearly \$1,000,000. Insurance to the extent of \$750,000 was carried with the Fleischeim agency of Menominee and the Douglas & Van Orden agencies at Houghton. The loss on the balance of the village will foot up about \$2,000,000, with \$300,000 insurance. The fire is still burning in the lumber piles and it is impossible to go among the ruins. Houghton and Hancock are raising provisions and clothing. Money is needed badly.

Minnesota were two causing damage to the amount of about \$5,000 each. As showing with more particularity the dangerous situation in this state I will here quote the preliminary report and annexed correspondence which I submitted at the close of the year:

OFFICE OF CHIEF FIRE WARDEN, }  
ST. PAUL, Dec. 31, 1896. }

*Hon. R. C. Dunn, State Auditor and Forest Commissioner:*

SIR: In the form of a brief preliminary report I beg to hand you herewith a copy of some of the correspondence of this office, mostly communications from fire wardens, showing the danger of forest fires which prevailed in the Lake Superior region during the past season. It does not include all of the forest fires which occurred but it includes the more serious ones. In almost the entire Lake Superior region there was dry and dangerous weather for several weeks. I invite your particular attention to the contrast between the situation in this state and in Michigan, which has no fire warden law. On the 25th of August the village of Ontonagon, Mich., with property to the amount of several million dollars, was destroyed by a forest fire which had been previously burning in the woods southwest of the village for two weeks. The weather was just as dry and dangerous in Minnesota as in Michigan, and, although forest fires occurred in this state, nothing happened which could in any degree be compared with the calamity at Ontonagon. If we had no fire warden law people would, of course, turn out to protect their own property from fire and their neighbors would help them. But how about the forest fire burning some distance away, possibly on some non-resident's land? That is the kind of fire—if we had no fire warden law—most likely to be neglected, and therefore most likely finally to prove dangerous. It is the business of fire wardens to look after such fires, as well as others, and have them extinguished.

No one should claim for this law all the credit of preventing and extinguishing forest fires in Minnesota the past season, but to deny that it proved of very considerable public benefit would be unjust to many fire wardens and their helpers, whose activity was effective and praiseworthy. With further experience on the part of those charged with the execution of the law it ought to prove still more effective.

Very respectfully,

C. C. ANDREWS,  
*Chief Fire Warden.*

## CORRESPONDENCE.

## AITKIN COUNTY.

E. Bakkila, of the town of Beaver, August 25th:

The weather has been dry here over two months. All is safe in respect to fire yet.

E. O. Brown, chairman town of Kimberly, August 27th:

The weather has been dry all summer with only a few small showers of rain. If there does not come a good soaking rain there is very much danger of fire this fall as the ground is as dry now as two years ago.

Same, October 1st:

It is very dangerous for fires in this section of the state and big fires are already started not far from this point. The closest watch is kept and everyone is as careful as possible, but the greatest danger is from bird hunters and railroad engines. The first named are traveling all over the woods this fall.

James McAskill, chairman town of Hazelton, August 30th:

We have had no rain here for a month and there is danger of fires. There are very few settlers in this part of the county, which is all heavy timbered and rank growth of grass. If the dry weather continues it will be hard to stop fires.

Anders Larson, of the town of Glen, September 30th:

No rain for the last two weeks. There is plenty of food for the fire as the grass and weeds are grown very thick through the woods.

## CARLTON COUNTY.

H. M. Waldref, chairman of the town of Mahtowa, September 22d:

It is very dry and great danger of fires at this place. There have been fires repeatedly kindled here for the past six weeks by the stock farm employes, by the owner's orders, and the whole place is on fire to-day.

October 3d, he reports:

Since receiving your letters I have not had time to report to you, have been so busy fighting fires. I have had four buildings, together with a lot of personal property and a fine park, burnt up. Total loss for myself \$3,000. Several persons have lost small quantities of hay from fire. At the present time the fire is completely under control. I have had out fighting fire about thirty-five men and four teams on an average of two and a half days each.

John A. Swanson, of the town of Atkinson, September 29th. [Telegram]:

Forest fires are endangering our homes and property. It is in the live timber and hay meadows now. Send us help.

D. Moses, president village council, Cloquet, September 30th:

Sent thirty-eight men to fire at Atkinson and Carlton.



H. H. Hawkins, president village council of Thomson, September 30th. [Telegram]:

Have all men here fighting fire in town of Thomson.

Same, October 3d. [By letter]:

Fires are now well under control and no danger is apprehended. I still keep men on guard.

President of village council of Barnum, September 30th. [Telegram]:

Have sent men to look after fires. Will report later. No immediate danger, however.

Asa Paine, president village council, Carlton, September 30th. [Telegram]:

Our town surrounded by fire and no help to spare; heavy fires raging in township.

Same date by letter:

I received your message regarding call for help and note your instructions. I have communicated with the chairman of the board of supervisors but we cannot see our way clear to send anyone from here as our town is surrounded by fire, and Mr. Sheils, chairman of the board of supervisors, has been rushing around night and day throughout his district impressing men where needed to avert greatest danger. I am doing the same in this village.

Same, October 1st:

There have been a number of buildings burned and an aggregate loss of \$2,000 in the townships of Mahtowa and Atkinson, Carlton county, from forest fires during the last three days. The great danger to Carlton and vicinity is passed, and although considerable standing pine timber has been damaged and an enormous amount of young pine burned, the actual damage will not be severe if the pine is cut this winter.

Peter Jackson, chairman of the town of Knife Falls:

A fire occurred September 24 and burnt over 200 acres of brush and meadow. Damage about \$50. It originated on Sec. 26 and is supposed to have been caused by clearing land. It was extinguished in two days by the help of fifty persons, including fire wardens, by use of shovels and by hauling water with teams. The reason so many were called to help was because the wind was blowing a gale and it looked for awhile very much as if Cloquet was in great danger.

M. C. Kimberly, general superintendent, Northern Pacific Railway Company, October 1st:

I telegraphed our local superintendent at Duluth this morning about the fires in that neighborhood, and he informs me that while there is a large quantity of smoke there is very little fire and it is confined to the underbrush. He thinks there is no danger of serious results, and states that he has given instructions to all employes on his division to watch it closely and do everything possible to prevent its spreading.



William Sheils, chairman of the town of Twin Lakes, October 2d:

Your letter of 30th at hand to-day. I have been in the woods fighting fire since Sunday morning in the vicinity of Wrenshall. The whole country is on fire. It seems impossible for me to spare a man out of this town. Every man is at work now at the fire and the country is going to suffer, the best we can do. I am using every means possible, but everything is so dry it is hard to stop it.

H. H. Hawkins, president Village Council of Thomson, September 30th:

Forest fires are raging in town of Thomson, north of village. Cause, section men burning right of way on D. & W. Ry. Have a large force of men at work to protect forest and property of farmers. Have promised them \$1.50 per day. Is that right? If possible will send some men to Atkinson to-morrow. I arose from a sick bed to write this, to tell you that we are doing all in our power to subdue the fires.

#### COOK COUNTY.

H. J. Redmyer, of unorganized Towns 58 and 59, Ranges 4 and 5 west, Lutsen, August 17th:

On the 23d July a forest fire, caused by lightning, occurred on Sec. 11, Township 59, Range 4 west; burnt over twenty-five acres of spruce and cedar, destroying the wood entirely and doing damage to the amount of \$100. A party had been taking out cedar posts some years ago and left all the brush and limbs; the lightning had struck a cedar tree and the fire spread into the dry brush. I had to row fourteen miles before I could get any help. The number of persons assisting was thirteen. We found a small stream near by, and the fire was extinguished by carrying water and by ditching around the edge of the fire. It took me one day before I got control of it, and fully six days before it was extinguished. I had two men employed four days. The weather was very dry, but cold nights.

Chester S. Durfee, of Grand Marais, September 28th:

There has been dry and dangerous weather about three months this summer. There is great danger of fires now and will be during October unless we get considerable rain.

J. E. Johnson, of Township 61, Range 4 west, Lutsen, October 20th:

September was dry and we had a little fire started by some hunters on Secs. 11-61 and 22-61, Range 4. No danger at present.

George Wartner, of Gunflint Lake (via Port Arthur, Ontario), October 22d:

We had dry weather during June and September.

C. A. A. Nelson, of unorganized Towns 60, 61 and 62-2, Range 2 east, Lutsen, October 23d:

A forest fire, caused by campers, occurred in the southwest part of Township 60, Range 2, during dry weather which burnt over about two acres of light timber land but destroyed nothing of great value. Three persons were

called to help extinguish it, which was done by digging ditches, carrying water and felling trees. There has been dry and dangerous weather the past two months.

L. Eliason, of Hoveland, October 28th:

The weather has been dry and dangerous nearly all summer.

Bernt Jacobson, of unorganized Towns 63 and 64, Range 4 east, Hoveland, November:

There was dry weather about two months this season.

#### LAKE COUNTY.

Jacob Hangartner, of Beaver Bay, September 28th:

There has been dry and dangerous weather three months. There is fire in the bush. Should it continue dry there might be danger.

#### ST. LOUIS COUNTY.

Andrew Galbranson, of the town of Herman, September 24th:

It has been quite dry all summer but not any fire.

John Peterson, of the town of McDavitt, September 25th:

We have had dry weather for about six weeks.

C. M. Stevens, chairman town of Floodwood, September 25th:

It is getting dry now and fire is liable to break out any time.

Same. October 3d. [Telegram]:

Big fire in 53-21. I am called by settlers.

Henry Langten, of the town of Industrial, September 27th:

We have had a large fire in our township, it has been burning for three days and I think danger is over.

Olaf Galbrandson, chairman of town of New Midway, September 28th:

No rain since July 4th to present time. Very dangerous now.

C. O. Eklund, of the town of Culver, September 29th:

The weather has been dry and dangerous for the past three or four weeks.

Peter Fishan, chairman of the town of Herman, October 1st:

We have had dry and dangerous weather all summer, and especially now. We haven't had rain for over four weeks. Several fires have broke out within the last few days caused, probably, by hunters. No damage done yet. We shall try our best to keep control of it.

James Erickson, chairman of town of Industrial, October 1st [Telegram]:

Whole county is afire; seems impossible to check it.

Same, October 5th:

Yours of October 1st at hand. We now have fire under control; have had some rain, and, as it is raining quite hard to-night, think further spread of fire impossible.

Henry Kirk, chairman of the town of Duluth, October 1st:

It is very dry and has been for six weeks. There are several fires in the forest burning now.

James Campbell, chairman of the town of Rice Lake, October 2d:

It has been very dry since August 1st. There are small fires burning now, started last Sunday. I have six men out now fighting fires; have been fighting fires since Tuesday last. Do not know how they started. Have got them pretty well under control.

D. M. Philbin, general superintendent, Duluth & Winnipeg Railroad, Duluth, October 3d:

I have your favor of the 1st. \* \* \* The woods are very dry and we fully appreciate the great danger at such times and will continue to do everything in our power to keep things safe in our district.

D. W. Owen, chairman of town of Breitung, October 5th:

The weather has been very dry here for the last two months. We have had a few fires in our township. As yet they have not done much damage.

### PRECAUTIONS AGAINST FIRES.

With a view of giving greater publicity to the Forest Preservation Act, I, in February, sent an extra copy of it to each chairman of town board, requesting that he would have it read at the annual town meeting occurring the second Tuesday of March. I at the same time inclosed a postal card by which he could inform me whether or not the request was complied with. The answers showed that the law was very generally read. The following is the circular which was sent to chairmen requesting to have the law read:

STATE OF MINNESOTA,  
OFFICE OF CHIEF FIRE WARDEN,  
St. Paul, Minn., Feb. 20, 1896.

*Mr.....Chairman.*

*.....Minn.*

SIR: You are requested to have the Act of April 18, 1895, for preventing forest and prairie fires, a copy of which is herewith transmitted, read at the annual meeting of your town to be held the second Tuesday of March, 1896; and if practicable immediately after the election of moderator, as it will then be more likely to be heard by the largest number in attendance. If the notices of the annual town meeting have not already been posted please request the clerk to mention such reading therein.

The rank vegetation caused by the wet weather of 1895 will make it dangerous in regard to fires should the months of April and May prove very dry. The majority of people are careful and law-abiding; but the carelessness or

wrong doing of one or two, here and there, in dangerous weather may work fearful injury. Fire wardens are required to have the law strictly observed in the limits of their respective towns by corporations as well as by individuals; and it is expected that every community will strongly uphold them in the faithful discharge of their duty.

Very respectfully,

C. C. ANDREWS,  
*Chief Fire Warden.*

The question has been asked, How can a Chief Fire Warden at his office at the capital prevent, control, or extinguish forest and prairie fires? He can only do it through the local fire wardens and the citizens liable to be called upon as their helpers. His success will depend on the general forestry sentiment and good will of the public and on his ability to awaken in fire wardens zeal in the discharge of their duties. It is scarcely necessary for me to say that in selecting and appointing fire wardens (as I have to do in unorganized territory) no reference has ever been made to politics. I do not know the politics of a single fire warden. In all organized towns the three town supervisors are by law constituted fire wardens. In many towns different men are elected as supervisors every year, and consequently fresh instructions have to be sent to them. As showing the kind of appeal that is made to fire wardens from this office the following circular of instructions is given, which was transmitted the 9th of April on occasion of sending a fresh supply of placards:

STATE OF MINNESOTA,  
OFFICE OF CHIEF FIRE WARDEN,  
St. Paul, Minn., April 9, 1896.

*To the Chairman of the Board of Supervisors,*

*Town of.....*

.....*Minn.*

SIR: April and May are sometimes dangerous months in respect to forest and prairie fires, and this office ought, without delay, to be informed of the names and addresses of the newly elected supervisors, they being, under the act of April 18, 1895, fire wardens. Please inform me on within blank of the name, residence and postoffice of yourself and the other two fire wardens.



Probably there will be no need of changing the fire warden districts made last year.

There should be a few new warning placards posted in each town as a fresh reminder to people. I mail you a package which you will please have posted as prescribed by Section 4 of the aforesaid act.

You are requested to retain for yourself one copy of inclosed Circular No. 1, containing the Act of April 18, 1895, and have a copy delivered to each of the other newly elected supervisors.

Familiarity with the law will save a good deal of trouble.

You will see by Section 6 that fire wardens are to TAKE PRECAUTIONS TO PREVENT the setting of forest or prairie fires. The law, of course, does not prevent a person from burning brush or other material on his land, provided he does it in a suitable time of the year and takes reasonable precautions to prevent its spreading. But if he should start such a fire in dry weather or when there was a strong wind he would be negligent in the meaning of the law.

Fire wardens are clothed with the power and it is their duty to enforce the law in their towns. They will be held largely responsible that no dangerous fires occur. This is the second year of this new law, and, naturally, an improvement over the year 1895 will be expected. If we obtain as good results as possible from this law it will encourage the enactment of a better one. Our forests do now and for all time should continue to afford a great industry, the payment of wages to many workmen and a home market for farm products. They are a reservoir of moisture to feed our streams and fertilize our soil. Let school children and people of all ages be made to understand how important to their economical welfare is the preservation of the forests and they will become interested and active assistants in preventing forest fires. Try and enlist the interest of the enlightened and leading people of your town in the cause. See if meetings cannot be held and papers on the subject read. Through the board of trustees, see if the subject cannot properly receive attention in the schools; and, especially, endeavor to have something valuable accomplished on Arbor Day. The more interest fire wardens can awaken in the subject of forestry the easier will be their work of preventing forest fires and the sooner will we reach the time of a regulated consumption of the forests.

Very respectfully,

C. C. ANDREWS,

*Chief Fire Warden.*

### FIRES SET BY RAILROAD LOCOMOTIVES.

I am gratified to state that the annual reports of fire wardens show that fifteen less fires were caused by railroad locomotives in 1896 than in 1895. The number reported in 1896, as caused by railroad locomotives, was seventeen. The following circular was communicated to general managers of railroad companies on the 6th of April:

STATE OF MINNESOTA,  
OFFICE OF CHIEF FIRE WARDEN.  
ST. PAUL, MINN., April 6, 1896.

To the General Manager

.....Railroad Company,  
.....Minn.

SIR: In compliance with Section 12 of the Act of April 18, 1895, "for the preservation of forests" and for "the prevention and suppression of forest and prairie fires," the various railroad companies in this state caused "warning placards," furnished by the Forest Commissioner, to be posted last year, at their stations in the vicinity of forest and prairie grass lands. The placards so posted must have been read by a great number of people and the effect was doubtless very beneficial. This office acknowledges with thanks the promptitude and willing spirit of railroad companies in endeavoring to carry the law into effect. I send you to-day by.....express, a fresh package of.....warning placards, on cloth, with request that the same be posted in place of the old ones, one on the outside and one on the inside of every depot or chief station building along the lines of your road in this state, in the vicinity of forest and prairie lands. It was noticed last year that at a few stations placards were not carefully posted; also, that a few stations were omitted. I also send.....copies of the above mentioned Act requesting your particular attention to Section 12, the provisions of which should be impressed upon all employes of your company in the field.

Said Section 12 requires several things of railroad companies, among them the use of *efficient spark arresters* on all their engines. While it is understood that it is not practicable to have absolutely efficient spark arresters, it is believed that the degree of efficiency of any device depends upon the care with which it is maintained in good condition. The Chief of the Forestry Division of the U. S. Department of Agriculture, Washington, in his annual report for 1893 (Report of the Secretary of Agriculture, 1893, page 345), shows that in the government forests of Prussia, representing 60 per cent of the German forest area, during the ten years 1882-1891, there occurred 156 large fires—96 from negligence, 53 from ill-will, 3 from lightning, and only 4 from locomotives. During seven years out of ten there were no fires caused by locomotives. It should be explained, however, that a very important help there in preventing fires along the lines of railroads is a system of patrolling, also better organization than we have for controlling any such fire. How is it in regard to fires from locomotives in Minnesota? Not to mention the year 1894, there were in 1895, according to reports from fire wardens, thirty forest and prairie fires caused by sparks from railroad locomotives!

We are entering on the second year of this new law. The rains of last year produced rank vegetation in many places, and before December there will doubtless be dangerous weather for fires. It is expected that each railroad company will insist upon rigid and frequent inspections of the spark arresters, cause seasonable repairs to be made where needed, and hold locomotive engineers to stricter accountability for the good condition of their spark arresters. Whether it would not be economical to enlist the interest and service of inhabitants along the roads to watch and act as patrols and guards in dangerous weather to extinguish fires may be worthy of consideration.

Under the law, individuals are held to strict responsibility, and a marked decrease of the number of fires caused by locomotives will have a tendency to promote willing compliance with the law generally.

Very respectfully,

.....  
Chief Fire Warden.

Section 12 of the Forest Preservation Act requires railroad companies to use efficient spark arresters on all their engines and to keep their right of way to the width of fifty feet on each side of the center of the main track cleared of all combustible materials. Where engineers, conductors or trainmen discover that fences or other materials along the right of way, or wood land adjacent to the railroad, are burning, or are in danger from fire, they shall report the same promptly at the next telegraph station that they may pass. In seasons of drouth railroad companies shall give particular instructions to their employes for the prevention and prompt extinguishment of fires.

In the matter of keeping their right of way cleared of combustible materials and in the care used by section men in burning such materials, especially as to companies operating in forest regions, there is much room for improvement.

#### FOREST AND PRAIRIE FIRES 1896.

As herein before, stated very dry weather prevailed over a large area of forest country, and especially in the region of Lake Superior. In 21 counties the aggregate number of forest fires reported in 1896 was 91, and the number of acres burned over, mostly light timber and meadow, was 14,912. The aggregate amount of damage caused by these fires was \$16,059. The number of prairie fires was 103. The number of acres burned over was 199,325, and the aggregate amount of damage reported was \$21,788. The acreage swept by prairie fires was surprisingly large and occurred mostly in the valley of the Red River of the North. The area burnt over in Polk county alone was 45,000 acres. In deference to the opinion of local authorities



fire warden precautions were omitted in that large county except as to two or three towns. In the future these precautions should be required until the danger of such fires to any great extent shall cease. Also, in Marshall county large prairie fires occurred in towns where fire warden precautions, out of deference to local authority, were not taken. The aggregate figures were also largely swelled by the prairie fires which occurred in the new and thinly settled county of Roseau.

For any one to set fire that he cannot control in dry weather in the vicinity of forest is morally and legally wrong. It is not to be expected, however, that negligent and lawless people will change their habits all at once, but if the law is enforced with reasonable vigor they will from year to year become habituated to greater care.

From now on the number of new settlers going into our forest regions to open farms is likely to increase. The danger from fires will increase, and as fire warden service becomes extended over additional territory not heretofore heard from, the number of fires reported is liable for some years to increase. The important thing, however, will be to prevent any of them becoming very serious.

#### SUMMARY OF FOREST FIRES, 1896.

County and Towns.	Date.	Acres.	Damage.	Cause.
<b>Aitkin County—</b>				
Beaver .....	Sept. 28.....	*50	None	Clearing land.
Hazelton .....	Oct. 1.....	5	.....	Unknown.
Kimberly .....	Aug. 1.....	*15	\$40	Railroad locomotive.
Spencer .....	Sept. 23.....	*100	None	Unknown.
Unorg. T. 47, R. 24..	Sept. 30.....	60	15	Unknown.
<b>Becker County—</b>				
Clifford .....	Oct. 24.....	†800	.....	Unknown.
<b>Benton County—</b>				
Gilmanton .....	Oct. 22.....	*25	None	Unknown.
Gilmanton .....	Oct. 25.....	†5	None	Hunters.
Glendorado .....	Oct. 5.....	6	None	Hunters.
Granite Ledge .....	Oct. 25.....	25	None	Unknown.
Maywood .....	Aug. 30.....	100	200	Railroad section men.



County and Towns.	Date.	Acres.	Damage.	Cause.
<b>Carlton County—</b>				
Atkinson.....	Aug. 3.....	*5	None	Unknown.
Atkinson.....	Sept. 23.....	†160	60	Unknown.
Atkinson.....	Sept. 26.....	200	100	Unknown.
Atkinson.....	Sept. 27.....	160	68	Unknown.
Carlton.....	Sept. 23.....	100	None	Tramps.
Knife Falls.....	Sept. 24.....	200	50	Clearing land.
Knife Falls.....	Sept. 28.....	*100	50	Unknown.
Mahtowa.....	Sept. 28.....	500	3,000	Burning meadow.
Red Clover.....	Aug. 4.....	1	None	Lightning.
Red Clover.....	Sept. 23.....	2	None	Unknown.
Red Clover.....	Oct. 3.....	2,000	1,000	Clearing land.
Split Rock.....	Aug. 19.....	†1	6	House chimney.
Split Rock.....	Sept. 9.....	†1	None	Clearing land.
Thomson.....	Sept. 22.....	†1,000	400	Railroad section men.
Twin Lakes.....	Sept. 26.....	1,500	5,000	Railroad locomotive.
<b>Cass County—</b>				
Unorg. T. 146, R. 27	May.....	80	None	Unknown.
<b>Cook County—</b>				
Unorg. T. 59, R. 4 W	July 23.....	25	100	Lightning.
Unorg. T. 60, R. 2 W	.....	2	.....	Campers.
<b>Crow Wing County—</b>				
Crow Wing.....	Sept. 29.....	15	50	Threshing engine.
Deerwood.....	Aug. 8.....	†180	75	Burning old hay.
St. Mathias.....	Oct. 1.....	†1,000	100	Unknown.
<b>Douglas County—</b>				
La Grand.....	Oct. 11.....	4	None	Unknown.
<b>Itasca County—</b>				
Iron Range.....	July.....	200	Slight	Clearing land.
<b>Kanabec County—</b>				
Arthur.....	Aug. 4.....	†6	None	Unknown.
Arthur.....	Aug. 27.....	†50	20	R. R. section men.
Arthur.....	Sept. 25.....	500	50	Unknown.
Brunswick.....	Aug. 22.....	†30	100	Unknown.
Brunswick.....	Sept. 1.....	†160	None	R. R. section men.
Brunswick.....	Oct. 16.....	†320	None	Railroad locomotive.
Fillman.....	July 15.....	½	None	Lightning.
Knife Lake.....	Oct. 24.....	*640	57	Unknown.
<b>Lake County—</b>				
Beaver Bay.....	Sept. 27.....	350	300	Clearing land.
Beaver Bay.....	Oct. 1.....	40	400	Travelers.
Beaver Bay.....	.....	20	100	.....
Two Harbors.....	Sept. 30.....	600	1,500	Unknown.
<b>Marshall County—</b>				
East Valley.....	Oct. 19.....	†80	20	Unknown.
<b>Mille Lacs County—</b>				
Bogus Brook.....	Sept. 28.....	†300	None	Unknown.
Milo.....	Aug. 23.....	40	None	Clearing land.
<b>Morrison County—</b>				
Cushing.....	Oct. 1.....	30	5	Unknown.
Ripley.....	Oct. 1.....	†300	200	Unknown.

County and Towns.	Date.	Acres.	Damage.	Cause.
Otter Tail County—				
Butler.....	Aug. 13.....	*40	None	Unknown.
Homestead.....	Aug. 24.....	5		
Pine Lake.....	Oct. 15.....	†80	30	Railroad locomotive.
Woodside.....	Sept.....	40		Unknown.
Pine County—				
Brook Park.....	Sept. 24. ...	*20	50	Railroad locomotive.
Dell Grove.....	Aug. 28.....	†20	None	R. R. section men.
Dell Grove.....	Aug. 29.....	5	None	Railroad locomotive.
Dell Grove.....	Sept. 2.....	10		R. R. section men.
Dell Grove.....	Sept. 26.....	*3	10	Clearing land.
Dell Grove.....	Sept. 26.....	*4	None	Burning slough.
Finlayson.....	Aug. 28.....	30	100	Railroad locomotive.
Finlayson.....	Sept. 26.....	*80	50	Railroad locomotive.
Mission Creek.....	Aug. 15.....	40	15	Clearing land.
Pokegama.....	July 30.....	40	30	Unknown.
Rock Creek.....	Oct.....	80	100	
Polk County—				
Emardsville.....	Oct. 3.....	†6	5	Burning stubble.
Roseau County—				
Soler.....	Sept. 23.....	36	10	From town of Barto.
St. Louis County—				
Canosia.....	Sept. 25.....	4	None	Unknown.
Canosia.....	Sept. 27.....	2	None	Unknown.
Canosia.....	Sept. 28.....	2	None	Unknown.
Culver.....	Oct. 2.....	2	None	Surveyors.
Duluth.....	Sept. 25.....	80	28	Hunters.
Duluth.....	Sept. 29.....	80	200	Unknown.
Gnesen.....	Sept. 24.....	100	None	Hunters.
Gnesen, T. 53, R. 14	Oct. 5.....	20	1,500	Hunters.
Herman.....	Sept. 20.....	†80	None	Hunters.
Herman.....	Sept. 28.....	†40	None	Hunters.
Herman.....	Sept. 30.....	15	None	Clearing land.
Industrial.....	Sept. 20.....	30	50	Hunters.
Industrial.....	Sept. 24.....	*200	130	
Industrial.....	Sept. 25.....	25	25	Clearing land.
Industrial.....	Sept. 25.....	100	300	Unknown.
Midway.....	Sept. 27.....	40	None	Unknown.
New Independence.	Oct. 1.....	80	100	Railroad locomotive.
Rice Lake.....	Sept. 25.....	10	100	Hunters.
Rice Lake.....	Sept. 28.....	500	None	Hunters.
Rice Lake.....	Oct. 5.....	150	150	From adjoining town.
Unorg. T. 54, R. 21..	Oct. 3.....	80	None	Clearing land.
Todd County—				
Wykeham.....	Oct. 4.....	†320	10	Hunters.
Wykeham.....	Oct. 25.....	†120	None	Smoker.
Wadena County—				
Shell River.....	Oct. 3.....	200	None	From adjoining town.

\* Meadow. † Light timber.

Total acres burned over, 14,912. Damage, \$16,059.

Classification of causes:

From clearing land, 12.

From railroad locomotives, 9.

From hunters and fishers, 11.

From other causes, 22.

Unknown, 33.

## REPORTS OF FIRE WARDENS OF FOREST FIRES IN 1896.

## AITKIN COUNTY.

Henry Lukala, chairman of the town of Beaver, October 14th:

A man had been burning brush on his clearing on Sec. 28, September 28th, and the weather being dry and wind high, it spread over 50 acres of swamp, but did no damage. It was soon put out by fire wardens and their helpers.

E. O. Brown, chairman of the town of Kimberly, August 26th:

A fire occurred the 1st instant, burning over 15 acres of hay field, destroying three stacks of hay. Damage, \$40 to \$50. It originated on Sec. 1 and was caused by sparks from a steam shovel engine. Was extinguished with assistance of railroad men. Weather dry and windy.

Charles Lovegren, of the town of Farm Island, September 1st:

It has been quite dry the last two months, but there is no danger as yet.

## BENTON COUNTY.

M. J. Lynch, chairman of the town of Glendorado, February 21st, 1897:

A fire occurred on Sec. 36, October 5th, and burned about six acres; no damage. I called out six men and extinguished it in two hours. It was set by hunters. There was a high wind, but the fire was in timber or we would not have been able to extinguish it.

## CARLTON COUNTY.

John Atkinson, chairman of the town of Atkinson, August 17th:

Fire occurred August 3, originating on Sec. 20, burnt over five acres small brush. No damage. The land adjoins a lake and I think it was started by fishermen. It was extinguished ten hours after it started by shoveling earth. Weather dry and windy.

Again, September 27th, he writes:

We have a fire which broke out on Sec. 35. Fires have broken out all around us in all directions. We are in bad shape. I have 21 men out fighting fire. Will report later, have not time now.

Also, October 1st, he reports:

We have got the fires in my district under control now. I counted 12 fires in the forest in Towns 47 and 48, Ranges 17 and 18.

October 16th he reports:

There was a fire September 23, originating on Sec. 35, Town 48, Range 18, which ran over 160 acres, destroying 11 tons of hay. Damage, \$60. It was extinguished by use of shovels, pails, wet sacks, two teams with plows and by backfiring. Weather dry and windy.

A fire occurred September 26, originating on Sec. 34, Town 48, Range 18, and burned over 200 acres of partly light and partly heavy timber. Damage, \$100. Weather dry and windy. It was extinguished by use of shovels, pails, wet sacks and by backfiring.

A fire occurred September 27, weather dry and windy, originating on Sec. 2, Town 47, Range 18, and burnt over 160 acres of light timber on Sec. 35 of this town. Destroyed 3 tons of hay, cord wood and timber. Extinguished by clearing, plowing, shoveling earth, using wet sacks and by backfiring.

Asa Paine, president village council of Carlton, October 5th:

A forest fire occurred in the east part of the town of Carlton September 23; burnt over 100 acres of light timber and destroyed nothing of value. It originated on land occupied by lumber yards and was caused by tramps "camping out." Twenty persons assisted in extinguishing it and it was finally extinguished by rains

I note your remarks concerning plowing as a means of stopping and backfiring and as a firebreak. That is impracticable in this vicinity, as our lands are thickly covered with a young growth interspersed with old and down timber and a rank growth of grasses in some places.

The only successful mode is backfiring before the wind drives the fire onto the property to be saved, and the placing of men at frequent intervals with shovels to throw dirt on to the fire and keep it down. That is the means I have used except on the east side of our village, where it was convenient to a body of water and we could use steam fire pumps and hose.

The greatest suffering among the farmers is caused by the burning of the large amount of hay on the various meadows, and this is really working a great hardship to them and I wish there was some means of replacing this fodder, as many families will suffer from their inability to feed their live stock and especially their milch cows.

October 9th he reports:

There was a fire the 28th September which burnt over 100 acres of field and timber. Damage, \$50. A strong wind was blowing. It was put out in 36 hours after it started with the help of 8 men, including fire wardens.

Matt. Heikkila, chairman of the town of Red Clover, October 9th:

There was a fire September 23d, originating on Sec. 20, occupied by the Clinton Lumber Company, which burnt over two acres of old cut land; cause unknown. Was put out in two days after it started by ditching around the fire. Weather dry and windy.

On the 3d instant a fire, caused by clearing land on Sec. 10, ran over about 2,000 acres of light timber and cut land, doing damage, according to my estimate, of \$1,000. It is difficult to estimate the damage. Some claim that a fire does benefit rather than damage. The way I estimate is this: If timber that is burned over could be cut this winter and used for what it is fit for the damage would not be much over the above mentioned amount, otherwise it would be a great deal more. The fire had started many days before I was informed of it. It was extinguished by ditching around the more dangerous parts. The weather was dry and windy at first, but there was rain on the 4th.



Nels Johnson, of the town of Thomson, November 16th:

A forest fire occurred Sept. 22 in the north part of the town of Thomson, being Township 49, Range 16, caused by section men of Duluth & Winnipeg Railroad Company burning right of way. It burnt over 1,000 acres of brush timber and destroyed fences and timber. Damage, \$400. It was extinguished in 60 hours after it started, by fire wardens and help which we called, by back-firing, ditching and throwing on water. The weather was dry and windy.

William Sheils, chairman of the town of Twin Lakes, October 4th:

There was a fire September 26, originating on Secs. 27 and 30, Township 48, Range 16, along the N. P. R. R. It burnt over 1,500 acres of all kinds of hard timber, destroying timber, hay, wood and fences and doing damage to the amount of \$5,000. Weather was dry and warm with high winds. Seventy-five persons were called to help extinguish it, which was done in six days after it started by plowing, backfiring, digging, etc. I. F. Jagger, Frank Kelly and Fred Haubagger, all of Wrenshall, rendered particularly praiseworthy service.

The fires are pretty well under control here now, but if we do not get rain and the wind keeps blowing I am afraid we will have more fires yet. I cannot say much until I get time to look around and inquire into the matter, as I have not had my clothes off for a week.

Same, November 21st:

Parties living in the vicinity say it was a crew clearing right of way on the N. P. R. R. that set the fire. I was busy starting camp at time of fire. As soon as we got it under control I could not give it any more attention.

#### COOK COUNTY.

J. E. Johnson, of unorganized Town 61, Range 4, December 18th:

There was a fire on Sec. 11, Township 61-4, October 7, burnt over one acre of light timber and did damage to amount of \$10. Must have been caused by hunters. It was extinguished in nine hours after it started by carrying water and by shoveling earth upon it. Weather very dry with some wind.

#### CROW WING COUNTY.

O. Vanasse, of town of Crow Wing, November 17th:

There was a fire on Sec. 19, August 9th, which burnt half an acre of meadow. A party was building a road and set fire to burn a wasp's nest. He went home and did not come back for a week. A few days after the fire started to run. With the help of one person, whom I called, I dug a ditch around the fire; then I notified the party who set it and it was extinguished. The weather was very dry.

There was a fire September 29 on the west side of the town of Long Lake which burnt over 15 acres of meadow, destroyed the grass and sod; damage, \$50. A threshing engine came over this meadow, which is crossed by a town road, and set fire to the sod in the road. The weather was exceedingly dry; we had had no rain for a month and there was a heavy wind. The only thing we could do was to keep it from flying across the road. I hauled water in barrels and kept the same at hand, and kept the fire from running on high land and from running across the road into my town. It was extinguished in twenty days by a heavy rain.

John Brand of the town of Deerwood, October 17th:

On the 8th of August there was a fire which originated on Sec. 4 from burning old hay, the weather being windy, burnt over 180 acres of light timber and some pine. Damage, \$75. It was extinguished 27 hours after it started by digging up the earth around it. On one side was a lake.

Charles P. Ainsworth, of the town of St. Mathias, October 4th:

A forest fire occurred in the southeast part of this town the 1st instant, ran over about 1,000 acres of brush and meadow, and destroyed a little spruce and tamarack timber. The number of persons assisting in extinguishing the fire was 23. It was extinguished by backfiring along the road. The weather was very dry. Raining to-day.

#### HUBBARD COUNTY.

Frank Judnitch, of the town of Arago, November 2d:

The weather was dry in September and October. Very lucky this season in having no fires.

Dewitt Clason, of Osage, Feb. 11, 1897:

I know from personal knowledge that the Indians are responsible for a good many forest fires. I have known several instances where they have set fires in lonely places in woods so that grass would come up to attract deer, that they could more easily kill. I have also heard them remark that as long as there was timber on the reservation they would see that there was dead and down timber for lumbering. The Indians cause fires that are sometimes charged to cruisers.

#### KANABEC COUNTY.

C. P. Larson, chairman of the town of Arthur, October 9th:

A forest fire occurred September 24th and 25th which burnt over 500 acres of brush and timber and destroyed pine timber. Damage, \$50. Cause unknown. There was a heavy wind from the southwest. It was extinguished by digging firebreaks and backfiring.

L. A. Larson, of the town of Arthur, October 10th:

A fire occurred August 28 which burned over 50 acres of brush and meadow caused by section men burning right of way. Damage, \$20. It was extinguished in two days after it started.

L. I. Renstrom, of the town of Arthur, October 29th:

There was a forest fire August 4th, originating on Sec. 34, and burnt over 6 acres of brush. There was quite a hard south wind. It was extinguished in 17 hours after it started, by firebreaks and water.

Also, on September 2, there was a fire on Sec. 27, which burned over 6 acres of brush. Hard south wind at the time. It was put out in three hours with water.

C. H. Olson, chairman of the town of Brunswick, September 4th:

There was a fire in the northwest part of the town September 1st, caused by railroad men, which burnt over 160 acres of brush and meadow. The fire

started at the railroad and ran in a southerly direction. It was extinguished in 24 hours. Half an hour after I got there a slight rain fell, so we got around it. Five persons were called to help.

Same, October 30th:

There was a fire October 16, caused by railroad employes, which burnt over 320 acres of brush and meadow, weather being dry. It was put out in 24 hours after it started by backfiring.

C. H. Ramgren, of the town of Brunswick, December 29th:

On the 22d August a fire burnt over 30 acres of meadow and light timber in Sec. 13; damage, \$100; caused by burning a hornet's nest. The weather was very dry, with strong wind. The number of persons called to extinguish the fire was 22. A strip was cleared off and plowed in the hard land. On the meadow digging was done a distance of about 80 rods so as to confine the fire. It was extinguished in three days after it started.

From Hon. Charles Keith, dated Mora, September 1st:

From to-day's train I notice at some distance from the railroad large fires burning in the timber. Very soon a large destructive fire will be laid at the door of the Great Northern Railway, which they have not occasioned. This fire is now opposite the 44th mile post on the St. Cloud and Hinckley line, and coming up from the south toward the tracks.

W. F. Hillman, chairman of the town of Hillman, December 5th:

The 15th of July, weather hot and dry; the lightning struck two trees on Sec. 31, burning them down and setting the woods on fire. I extinguished the fire myself by digging around it. Distance from my place three and a half miles.

E. O. Mellgren, of the town of Knife Lake, November 6th:

A fire occurred October 24th, which burnt over 640 acres of meadow. Cannot state for certain how it originated. Heavy wind from southwest. Fourteen persons were called to help extinguish it, which was done by firebreaks in ten hours after it started.

#### LAKE COUNTY.

W. D. Lawrence, chairman of the town of Two Horbors, October 7th:

A fire which started on Sec. 24, Township 53, Range 11, in the morning and continued all day, burnt over 600 acres of cut and standing pine land. Ten persons were called to help extinguish it, which was done by fighting with earth and backfiring to prevent it running further. Cause unknown. Weather very dry. Recent rain completely extinguished it.

R. H. Slater, chairman of the town of Beaver Bay, December 24th:

On the 27th September a fire, caused by clearing land in the northwest part of Township 55, Range 8, burnt over 350 acres of brush land and destroyed 80 feet span of bridge, damage \$300, but no damage to the land. Eight persons helped to extinguish it by digging trenches and carrying water. Weather very dry and strong winds. The weather was so dry it was impossible to put the fire out entirely. It burnt about a week. Heavy rain helped to put it out. The ground is covered with moss and old rotten wood a foot or more.



Same, Feb. 11, 1897.

There was a fire in Secs. 34 and 35, Town 56, Range 8, which burnt over 20 acres. Damage, \$100. Cause unknown.

Jacob Hangartner, of the town of Beaver Bay, December 22d:

A fire in the west part of Township 56, Range 7, caused by travelers on the highway, burnt over 40 acres of light pine timber. Damage, \$400. It was put out in 40 hours after it started, by cutting around the timber. Weather was very dry.

#### MILLE LACS COUNTY.

Frank Kaufert, of the town of Bogus Brook, October 10th:

On the 28th September a fire, which originated on Sec. 29, burnt over 300 acres of brush and light timber and was put out in four and a half days after it started, by use of wet sacks and otherwise applying water. The weather was dry and windy.

Lester Kempton, of the town of Milo, September 12th:

August 23 a fire burnt over 40 acres of dead timber on Sec. 22, and was under control in two days after it started. It was caused by burning brush. Weather hot with high wind from the south. It was extinguished by plowing up an old road about 80 rods and backfiring; by keeping it from crossing and going north; and by keeping it below Rum river, a mown meadow and two roads.

#### MORRISON COUNTY.

Phillip Moran, of the town of Ripley, October 5th:

The 1st instant a fire burnt over 300 acres of light timber brush and meadow in the east part of the town and destroyed twenty-five tons of hay. It was extinguished with wet rags tied to pitchforks dipped in water, which was hauled in barrels by teams. It has been raining all night, so there is now no more danger.

#### OTTERTAIL COUNTY.

Joseph Daiker, of the town of Pine Lake, October 3d:

On the 1st instant a fire, which originated on Sec. 22, set, as supposed, by a passing threshing engine, burned over ten acres of poplar brush; was extinguished in seven hours after it started by throwing earth upon it and by digging trenches. Weather was dry with little wind.

Same, October 16th:

The 15th instant a fire on Sec. 29, supposed to have been set by sparks from a railroad locomotive, burnt over 80 acres of poplar brush. Damage, \$30. It was extinguished in five hours after it started.

M. H. Wood, chairman of the town of Woodside, Feb. 23, 1897:

A small fire occurred in the month of September which burnt over about 40 acres and destroyed seven tons of hay. Damage promptly settled by party who let the fire get away.



## PINE COUNTY.

N. F. Alderman, of the town of Brook Park, September 24th:

A fire on this date, set by a freight train locomotive, burnt over twenty acres of mostly meadow and destroyed nine tons of hay and five rods of corduroy road; damage, \$50. Twenty-one persons assisted in extinguishing it, which was done by plowing, using wet sacks and hauling water. Weather dry and very windy. Hulda Johnson discovered the fire and ran over a mile to call help.

Erick Troolin, chairman of the town of Dell Grove, August 28th (telegram):

Swamps along the St. Paul and Duluth railroad are afire, set by section men. Please advise me.

Same, September 3d:

A fire set on the 28th August by section men of the St. P. & D. R. R. Co. burnt 20 acres of swamp.

On August 29 a fire, set by the locomotive of passenger train going south on Sec. 6, burnt over five acres and was put out in ten hours after it started.

Same, Feb. 20, 1897:

A fire was set in a swamp September 2 by a railroad locomotive on Sec. 36, Town 42, Range 21. Burned over about ten acres and was watched to prevent its spreading.

Severt Haglen, of the town of Dell Grove, September 28th:

On the 26th instant a fire set on Sec. 7 burnt over 4 acres of marshy meadow. Origin not known, but it looks as if it was started to burn the swamp out. It was subdued by brush brooms and shovels. Weather hot and dry, blowing from the northwest. The fire is not yet out and a shift of wind may set it running again and cause a very big fire if it continues dry; in fact there are a great many fires in sight all around this neighborhood. One on Sec. 6 was caused by clearing land in adjoining town.

J. F. Wilkin, chairman of the town of Finlayson, September 5th:

On the 28th August a fire on Sec. 17, Township 43, Range 20, set by sparks from a locomotive of the St. Paul & Duluth Railway Co., burnt over 30 acres and destroyed ten acres of timber, the balance brush; damage, \$100. It was extinguished in 36 hours after it started by mowing the brush and weeds, beating it with wet sacks, also plowing and digging with shovels where it was possible to smother it. Weather very dry. This is only one of a number of fires the past month caused by sparks from the St. P. & D. R. R. engines. Mr. Kelly, roadmaster, has always responded to a message with a crew of men in very short time, taking the nearest engine to dispatch the crew.

Same, September 30th:

On the 20th instant a fire on Sec. 19, set in the afternoon by sparks from a St. P. & D. R. R. engine, burnt over 80 acres of field and meadow and destroyed hay and corn of the value of \$50. It was extinguished in 6 hours after it started with buckets, sacks and backfiring.

John Falde, chairman of the town of Mission Creek, August 30th:

We have a fire covering about an acre of swamp. The turf or vegetable matter seems to be burning and I am unable to extinguish it. We are therefore digging ditches around the whole piece and will, I hope, in this way prevent it from spreading. The cause of the fire is no doubt hunters. No damage done.

John E. Norstrom, chairman of the town of Pokegama, Feb. 23, 1897:

In the latter part of July last a fire on Sec. 15, Town 39, Range 22, burnt over about 40 acres, destroying five stacks of hay. Damage about \$30. It was promptly extinguished, otherwise it would have spread all over the country west of Pokegama lake by reason of the abundance of grass and inflammable material in swamps and old pine choppings.

Geo. L. Stevens, chairman of the town of Rock Creek, February 6th:

There was a fire which started on Sec. 35, October 27, and burned about 80 acres. I went one day and looked the matter up, but could not get any proof as to who set it and so I had to drop it.

#### ST. LOUIS COUNTY.

E. B. Engren, chairman of the town of Canosia, September 29th:

A fire occurred the 25th instant, from cause unknown, and burnt over 4 acres. It was extinguished with mud and water taken from ditches by the road crew. No damage. Weather was windy.

Also, on the 27th instant a fire, from cause unknown, burnt over 2 acres on Sec. 31, being vacant land, and was put out, as supposed, in 12 hours with water which had to be hauled. Weather was windy and there was much dry rubbish on the ground.

Same, October 5th:

A fire broke out Sept. 29 which must have originated from the one of Sept. 27, but it only burnt over an acre of light timber, doing no damage. I had two men watch it Sept. 30 and the 1st, 2d, 3d and 4th instant and with water put out all the places it burnt in the ground and under roots.

Aug. Boquist, of the town of Canosia, October 27th:

A fire Sept. 28 burnt over 2 acres on Sec. 34. It was put out by throwing earth upon it. No damage.

Jules Coulombe, chairman of the town of Culver, November 30th:

On the 1st of October a field fire occurred on Sec. 12 which burnt over 5 acres. No damage. Cause unknown. Four persons were called and helped to extinguish it with water. Weather windy.

On the 2d October a fire on Sec. 3, set by a surveying party, burnt over 2 acres of brush and light timber. No damage. It was put out in 5 hours with the help of three persons by ditching. Weather windy.

Henry Kirk, of the town of Duluth, October 1st:

I resigned my office as chairman Sept. 7th and D. J. McDowell is appointed in my place. Up to September 7th there were no fires in this town, but there are some very bad forest fires now, which have all started in the last 12 days.

D. J. McDowell, chairman of the town of Duluth, December 28th:

A fire on Sec. 5 in September, supposed to have been caused by hunters, burned over 80 acres and destroyed hay of the value of \$28. The timber on the land had been cut, and what was left was light and no good.

Alfred Swanson, of the town of Duluth, December 9th:

A fire occurred on Secs. 17 and 27 (Town 52, Range 12) September 29 and 30 and October 1st and 2d, which burnt over 80 acres of heavy timber. Damage, \$200. It was extinguished by digging and by cutting trees.

C. M. Stevens, of Floodwood, October 6th:

The fire in Sec. 34, Town 54, Range 21, burned over 80 acres of old chopping and swamp, and was caused by burning brush to clear land. It was extinguished by brushing it out. I did not wait for an answer from you on Saturday, but I did not find the fire as bad as reported. It had burned across an old chopping and a swamp, but when it came to the high ground it did not run and there were two men at work putting it out when I got there. No damage was done. I staid till Sunday noon and it was nearly all out, and it commenced raining and rained all the afternoon and night Sunday, so there is no danger of fire here for some time.

Martin Lepak, chairman of the town of Gnesen, November 20th:

The 24th September a fire on old timber cutting in Sec. 10 (Town 52, Range 14) burnt over 100 acres but did no damage. It is supposed to have been caused by a hunting party. With reference to the fire in the western part of Town 53, Range 14, I learned from inquiry that it caused no damage of consequence. It was across the Cloquet river and almost inaccessible for me, as there is no way of crossing the river except by boat, and I had none at my command. It is very difficult to secure reliable information as to the cause of a forest fire.

Peter Fishan, chairman of the town of Herman, October 9th:

On the 30th September a fire in the center of the town burnt over about 15 acres of meadow and brush and destroyed some dry pine trees. No damage. It was caused by clearing land. Earth was thrown on it to prevent its spreading. Weather dry and windy. On the 4th we had a good rain and all danger of fire is over for awhile.

Rudolph Lang, of the town of Herman, October 6th:

On the 20th September a fire on Sec. 18, caused, I think, by hunters, burned over 80 acres of brush, but did no damage.

James Erikson, chairman of the town of Industrial, October 27th:

A fire on Sec. 6 September 20 burned over 30 acres of brush and timber and destroyed standing timber and cordwood of the value of \$50. Supposed to have been caused by hunters. It was put out in two weeks by shoveling earth, using water and grubbing ditches. Weather very dry with high wind.



On the 25th of September a fire on Secs. 3 and 10 burned over 25 acres of light timber and destroyed 10,000 feet of white pine; damage, \$25. It was caused by a gang of road laborers and was extinguished with water, by shoveling earth and digging ditches. Weather very dry and windy.

H. Longtin, of the town of Industrial, September 27th:

A fire on the 25th instant, originating on Sec. 34, burnt over two miles of old chopping and meadow and destroyed hay and pine of the value of \$300. It is not known how it originated. It is still burning, but I think the danger is over. Weather very dry.

Herman Hanson, of the town of Industrial, October 4th:

On the 24th September a fire, which originated at 11 A. M. on Sec. 34, burnt over 200 acres of meadow and light timber, and destroyed 13 tons of hay. Damage, \$130. The weather was very dry and windy and the fire could not be put out until rain came to-day. Sixteen persons were employed by me in holding fires from property and homes of settlers and from additional hay and meadows.

Same, October 20th and November 23d:

I know nothing of details of fire reported by H. Longtin, except that I know he and others were fighting a fire in his district while I was taking care of the one I reported. While on same section the two fires were far apart and were on opposite sides of the Duluth, Missabe & Northern railroad tracks. Mine was started in some way on the east side of the R. R. in a heavy meadow and burned through the meadow and off north.

I went through the district afterwards to look over pine and found it O. K. except a few dry pine. Some of the men employed by me to help on fires live ten to fifteen miles away and cannot very well get around to swear in their time, etc. Is it necessary for each man to swear to his own time in order to get his pay for fire protection work, or can I, who employed them and kept time, swear to it instead?

E. J. Berneche, citizen of Burnett, in the town of Industrial, Jan. 4, 1897:

On September 28 last at noon a train north bound, engine No. 5, caboose 14, set fire on my premises and before the train had entirely passed the spot the flames were seen shooting up skyward. It was but a short time till the woods and meadow across the track were all on fire. You no doubt have had a report of this fire from Mr. Hanson, fire warden here. In this fire the writer lost a small stack of hay, about three tons.

Olaf Gulbrandson, chairman of the town of Midway, November 9th:

A fire Sept. 27 on Sec. 18, which originated from an old fire, burnt over 40 acres of brush. No damage. Hard wind blowing. The fire was attended by C. Walin, fire warden for district No. 2 of said town. I think there should be a law that would compel the man that set a fire to work without pay.

G. A. Ringquist, of the town of New Independence, October 5th:

On the 1st instant a fire on Sec. 6, set by a railroad locomotive, burned over 80 acres of timber; damage, \$100. It was extinguished in 18 hours after it started by throwing earth upon it. Weather dry and windy.



James Campbell, chairman of the town of Rice Lake, October 5th:

On September 28 a fire originated, from hunters as supposed, on Secs. 35 and 36, which burnt over 500 acres of mostly hard wood, the pine having been cut two years ago. I do not think it destroyed any timber. Eight persons were called to help extinguish it. Where we could get water we stopped the fire from running, but where we could not get water we shoveled earth upon it, which checked it nearly as well as the water. Weather very dry, but the wind did not blow hard. One thing that was in our favor, there was quite a lot of branch logging roads which gave a clear place to work in. We did not get the fire all out, but kept it pretty well under control, until Sunday afternoon we got a good shower of rain and that fixed it.

A. A. Miller, of the town of Rice Lake, November 9th:

On the 25th of September a fire on Sec. 18, which was caused by the carelessness of hunters, burned over 10 acres of heavy timber and destroyed 50 cords of wood. Damage, \$100. It was extinguished in six days by flooding it with water. Weather warm and dry. The three persons called upon were prompt in coming.

J. F. Hobbes, of Duluth, fire warden for unorganized territory, October 13th:

On the 5th instant a fire on Sec. 35, Township 53, Range 14, burnt over 20 acres and destroyed about 400,000 feet of white pine and did damage to the amount of \$1,500. The land is owned by T. E. Dorr, of Saginaw, and is unoccupied. It probably was caused by camp fires built by hunters and carelessly allowed to spread. The fire was extinguished by rain on the 7th instant. Fire has also done considerable damage to standing pine along the line of the Duluth & Iron Range railroad; there have also been small fires in almost every township along the Cloquet river from the D. & I. R. railroad west. The fires, however, have not run to any extent and in the aggregate the amount of timber loss from fires in 1896 in St. Louis county will be much below the average. Rain during the first ten days of October extinguished all forest fires existing at that time and practically places the forests out of danger for the rest of the season.

#### TODD COUNTY.

John W. Sarff, of the town of Wykeham, October 21st:

On the 4th instant a fire on Sec. 16, caused, as supposed, by bee hunters, burnt over 320 acres and destroyed some small tamarack; damage, \$10. Land is owned by the state. It was extinguished in 5 hours. As the wind blew strong we thought it best to hire two watchers for the night, one on each road, as there were old stumps and logs on fire close to the road. It rained the next morning.

Same, October 26th:

On the 25th instant a fire on Sec. 15, caused by a man lighting his pipe, burnt over 120 acres of meadow, wire grass and light timber; destroyed nothing to speak of. About 20 to 25 persons assisted in putting it out, which was done by backfiring and public roads. Weather warm with a little wind.

## WADENA COUNTY.

Jerome Burt, chairman of the town of Shell River, October 12th:

On the 3d instant a fire burnt over 200 acres of meadow, but did no damage. It came from the town south of this (town of Meadow), where it burnt a great many tons of hay. Mr. Norstrum and two little boys kept the fire from crossing into a north slough, and it ran into a swamp and went out itself. The weather was dry and hot.

## SUMMARY OF PRAIRIE FIRES, 1896.

County and Towns.	Date.	Acres.	Damage.	Cause.
Big Stone County—				
Browns Valley.....	Oct. 14.....	*60	\$60	Burning straw.
Otrej.....	Oct. 18.....	*250	250	Burning straw.
Chippewa County—				
Granite Falls.....	Oct.....	*15	200	Burning stubble.
Leenthrop.....	Oct. 2.....	500	325	Burning straw.
Clay County—				
Elmwood.....	Sept. 17.....	*3	30	Burning straw.
Flowing.....	Sept. 23.....	280	75	Railroad section men.
Hawley.....	Oct. 13.....	20	12	Unknown.
Hawley.....	Oct. 13.....	100	.....	Burning straw.
Skree.....	April 20.....	2,500	.....	Unknown.
Jackson County—				
La Crosse.....	Sept. 20.....	*7	30	Burning straw.
Round Lake.....	Oct.....	5	None	.....
Kandiyohi County—				
Roseville.....	Aug. ....	*5	30	Railroad locomotive.
Kittson County—				
Clow.....	Oct. 14.....	3,000	None	Unknown.
Davis.....	Oct. 10.....	200	5	Burning straw.
Deerwood.....	Aug. 30.....	80	None	Unknown.
Deerwood.....	Oct. 14.....	3,500	15	Unknown.
Deerwood.....	Oct. 15.....	160	None	Unknown.
Hallock.....	Oct. 15.....	1,900	None	Unknown.
Hallock.....	Oct. 21.....	2,000	None	Unknown.
Hazelton.....	Oct. 14.....	3,800	150	Unknown.
Jupiter.....	Oct. 14.....	9,500	1,200	Unknown.
Richardville.....	Oct. 4.....	640	40	Burning firebreak.
Skane.....	Oct. 3.....	*40	75	Burning stubble.
Skane.....	Oct. 15.....	1,400	43	Unknown.
Svea.....	Sept. 27.....	7,000	200	Tramps.
Svea.....	Oct. 15.....	4,000	100	Burning firebreak.
Tegner.....	Oct. 20.....	800	None	Hunters.
Tegner.....	Oct. 22.....	500	None	Railroad locomotive.
Unorg. T. 160, R. 46	Sept. 29.....	80	.....	Unknown.
Unorg. T. 160, R. 46	Oct. 13.....	3,200	660	Unknown.
Unorg. T. 160, R. 46	Oct. 14.....	5,000	.....	Unknown.
Lac qui Parle C'ty—				
Arena.....	Oct. 28.....	*6	315	Burning straw.
Lake Shore.....	Oct. 15.....	50	60	Threshing engine.

\*Field or Meadow.

County and Towns.	Date.	Acres.	Damage	Cause.
<b>Lincoln County—</b>				
Alta Vista.....	Oct. 23.....	320	80	Burning stubble.
Ash Lake.....	May 10.....	320	10	Unknown.
Diamond Lake .....	Aug. 25.....	30	None	Unknown.
Hansonville.....	Aug. 13.....	*	260	Lightning.
Hendricks.....	Oct. 21.....	640	20	Burning stubble.
<b>Lyon County—</b>				
Lake Marshall.....	.....	320	10	Unknown.
<b>Marshall County—</b>				
Bloomer.....	Sept. 1.....	320	350	Unknown.
Comstock.....	Sept. ....	2,500	.....	From town south.
Donnelly.....	Oct. 15.....	11,000	None	Unknown.
Holt.....	Sept. 30.....	800	None	From adjoining town.
Nilson Park.....	Oct. 14.....	300	40	From adjoining town.
Spruce Valley.....	Oct. 15.....	1,000	30	Unknown.
West Valley.....	Oct. 24.....	7	10	Unknown.
<b>Murray County—</b>				
Ellsborough.....	Oct. 22.....	80	None	.....
Holly.....	Sept. 27.....	640	230	Unknown.
Iona.....	Sept. 28.....	50	90	Hunters.
<b>Nobles County—</b>				
Elk.....	May 2.....	40	.....	Unknown.
<b>Norman County —</b>				
Waukan.....	Oct. 26.....	600	30	From Indian reservation.
<b>Pipestone County—</b>				
Grange.....	Aug. 30.....	*25	100	Railroad locomotive.
<b>Polk County—</b>				
Badger.....	Oct. 15.....	1,000	.....	From t'wn of Grove Park
Belgium.....	Sept. 23.....	2,000	.....	Hunters.
Bray.....	Sept. 27.....	200	None	Hunters.
Chester.....	Sept. 24.....	6,000	200	Unknown.
Euclid.....	Oct. 7.....	*2	4	Burning straw.
Farley.....	Oct. 20.....	20	50	Burning straw.
Grove Park.....	Oct. ....	500	40	From adjoining town.
Hammond.....	Oct. 19.....	2,000	300	Burning firebreak.
Lake Pleasant.....	Oct. 25.....	50	100	Railroad locomotive.
Numedal T. 154 R. 45	Sept. 24.....	16,000	8,000	Burning grass.
Numedal.....	Oct. 17.....	2,000	900	Burning grass.
Norden.....	Oct. 25.....	200	None	Unknown.
Parnell.....	Oct. 22.....	1,000	None	.....
Polk Centre.....	Sept. 23.....	500	50	Burning weeds.
Poplar River.....	Sept. 12.....	1,000	50	Unknown.
Russia.....	Oct. 19.....	700	None	Unknown.
Russia.....	Oct. 24.....	3,200	None	Unknown.
Skandia.....	Oct. 25.....	300	None	Unknown.
Tilden.....	Oct. 26.....	300	500	Hunters.
Vineland.....	Oct. 27.....	10,000	.....	Unknown.
<b>Pope County—</b>				
Hoff.....	Oct. 8.....	*2½	225	Railroad locomotive.
<b>Redwood County—</b>				
New Avon.....	Oct. 15.....	200	75	Unknown.
Sundown.....	Sept. 15.....	*20	60	Burning stubble.
Vail.....	Oct. 6.....	5	None	Threshers.

County and Towns.	Date.	Acres.	Damage.	Cause.
<b>Renville County—</b>				
Osceola.....	Sept. 14.....	30	60	Unknown.
Wellington.....	Sept. 3.....	40	90	Burning stubble.
<b>Roseau County—</b>				
Barto.....	Sept. 23.....	19,000	1,000	Unknown.
Dieter.....	Oct. 25.....	700	150	Unknown.
Malung.....	Oct. 14.....	800	40	Unknown.
Pohlitz.....	Sept. 22.....	2,600	80	Unknown.
Soler.....	Sept. 23.....	19,000	1,000	From adjoining town.
Spruce.....	Oct. 14.....	60	6	Unknown.
Spruce.....	Oct. 24.....	300	60	Unknown.
Spruce.....	Oct. 25.....	3,500	.....	Hunters.
Stafford.....	Oct. 15.....	3,000	28	Unknown.
<b>Stevens County—</b>				
Hodges.....	Sept. 3.....	*3	15	Railroad locomotive.
Hodges.....	Sept. 23.....	60	None	Railroad locomotive.
Pepperton.....	Oct. 8.....	320	None	Threshing engine.
Pepperton.....	Oct. 16.....	340	250	Burning stubble.
Synnes.....	Oct. 12.....	300	None	Unknown.
<b>Swift County—</b>				
Camp Lake.....	Oct. 14.....	80	20	Burning stubble.
Tara.....	Oct. 1.....	300	105	Burning stubble.
Torning.....	Sept. 25.....	50	25	Burning straw.
<b>Traverse County—</b>				
Taylor.....	Sept. 22.....	80	None	Burning stubble.
<b>Wilkin County—</b>				
Akron.....	Sept. 20.....	5,700	None	Unknown.
Andreas.....	Sept. 22.....	2,400	None	Hunters.
Brandrup.....	Sept. 27.....	*20	35	Burning straw.
Manston.....	Oct. 28.....	1,500	None	Unknown.
Mitchell.....	Oct. 7.....	1,500	None	Unknown.
<b>Yellow Med. Cnty—</b>				
Florida.....	Aug. 29.....	600	285	Railroad locomotive.
Hazel Run.....	Oct. 3.....	250	None	Burning firebreak.

\* Field or meadow.

Total acres burned over, 199,325. Damage, \$21,788.

Classification of causes:

Railroad locomotives, 8.

Burning straw, 12.

Burning stubble, 9.

Hunters, 7.

Threshing engines, 2.

Other causes, 18.

Unknown, 41.



## REPORTS OF FIRE WARDENS OF PRAIRIE FIRES IN 1896.

## BIGSTONE COUNTY.

Michael Kennelly, of town of Brown's Valley:

A prairie fire occurred in the south part of the town of Brown's Valley, October 14, which burnt over sixty acres, destroyed twenty tons of hay and did damage to the amount of \$60. It originated on Sec. 34, and was caused by the carelessness of a hired man, who set fire to straw without plowing a firebreak. Weather was dry and windy. The fire was extinguished by plowing and by beating it out with wet sacks. I started out with team and plow, and neighbors who saw the fire came as quickly as possible. It did not get off the farm on which it started and was extinguished in two hours from the time it started.

Lorentz Larson, of the town of Otrej:

There was a prairie and field fire October 18, originating on Sec. 27, by burning straw without sufficient firebreak, destroying fifty tons of hay and two acres of medium timber. Damage, \$200. Extinguished with water and by plowing. Southwest wind blowing.

## CHIPPEWA COUNTY.

Andrew Rognstad, chairman of the town of Granite Falls, November 24th:

A fire, in October, which originated by setting fire to stubble on Sec. 15, burnt over 15 acres of field, destroying a granary and one rick of hay. Damage, \$200. It was extinguished in two hours after it started with help of five men plowing. There was a high wind.

A. B. Peterson, of the town of Leenthrop, November 25th:

A field and prairie fire occurred October 2d, which burned over 500 acres of meadow and field and destroyed one stack of wheat and four stacks and 75 tons of hay. Damage, \$325. It was caused by burning straw. There was a strong southwest wind. It was put out by farmers living close by, with teams and plows, and controlling it within public road.

## CLAY COUNTY.

B. F. Baumgardner, of the town of Barnesville, October 10th:

On the 1st instant one fire which originated on Sec. 16, from a railroad locomotive, burned over 1,600 acres, and destroyed hay of the value of \$160. It was extinguished in ten hours after it started.

M. Mallinger, chairman of the town of Elmwood, October 27th:

A fire occurred September 17, which burnt over three acres, destroying thirteen rods of willow hedge 25 feet high. Damage, \$30. It was caused by burning a straw stack, weather being dry and windy, and was put out two hours after it started, with use of water and wet sacks.

Christ Johnson, of the town of Flowing, September 24th:

A prairie fire occurred yesterday which burnt over 280 acres and destroyed two stacks of hay, doing damage to the amount of \$75. It originated on Sec.

31, and was caused by section foreman burning right of way. Weather windy. It was extinguished in six hours after it started by plowing and using wet bags. Andrew Hattledal, one of the town board, was present and assisted in extinguishing the fire.

George Kieping, of the town of Hawley, October 20th:

There was a fire about 11 A. M. the 13th instant, originating on Sec. 23, and burnt over 100 acres of prairie and river bottom. It was caused by a farmer setting fire to straw not having sufficient furrows plowed around it and the wind carried it away over the furrows. The weather was very dry and a south wind blowing at the time. I was on my way to a meeting of the town board, and seeing the fire was making so much headway, stopped and superintended putting it out, which was done about three hours after it started, by plowing and setting backfire.

Christopher Eid, of the town of Skree, November 9th:

On the 20th of April, the weather being dry and wind blowing from northwest, a fire came into this town from adjoining town on the west and burnt over 2,500 acres of prairie. It was put out in six hours after it started, with wet sacks.

#### JACKSON COUNTY.

J. B. Haberman, of the town of Lacross, November 27th:

There was a field fire September 22d, which burnt over seven acres of meadow, destroying fifteen tons of hay of the value of \$30. It was started by burning straw on plowed land on Sec. 19, and the heavy wind blew some of the burning straw on to the grass meadow. It was put out by plowing a firebreak and beating it out with brooms.

#### KANDIYOHI COUNTY.

A. J. Smithson, of the town of Roseville, November 19th:

A field fire in August, on Sec. 28, caused by a locomotive, burnt over five acres of wheat in shock. Damage, \$30. Weather dry. Almost all the fires in this section of the state are set by locomotives. About the middle and latter part of harvest we generally have excessive droughts.

#### KITTSON COUNTY.

R. Sylvester, of the town of Clow, November 7th:

On the 14th of October, weather being very dry, a prairie fire, which originated on Sec. 29 (Town 163, Range 49), burnt over 3,000 acres. We let it burn and protected ourselves. No damage. This fire was going for days.

Tollef Skatrud, of the town of Deerwood, November 2d:

There was a prairie fire August 30, which originated on Sec. 19 (Town 159-46) and burnt over 80 acres. No damage. Weather dry. It was put out in two hours after it started.

October 14, was a prairie fire which burnt over 3,500 acres, destroyed five tons of hay of the value of \$15. It came in at the northwest corner of the town from the town north, which is 160, range 46. Weather very dry and windy.

On the 15th of October there was a fire which ran over 160 acres, but did no damage. It started in the town of Hazelton, went through the town of Jupiter, into the town of Spring Brook, from Spring Brook into this town. It was extinguished in eight hours.

John Paulson, of the town of Hallock, October 24th:

On October 15 a fire occurred in the south part of this town, which burnt over nearly two thousand acres, a part being three-year-old grass, but doing no damage. It came from the township south of us.

On October 22 a fire ran over about 1,200 acres, but did no damage; wind blowing from northwest.

E. Haglund, chairman of the town of Hazelton, October 17th:

On the 14th instant a prairie fire, which originated on Sec. 29, burnt over 3,800 acres and destroyed hay of the value of \$150. There was a heavy wind so we could not do anything with it, and it was soon beyond our control.

Oscar Englund, chairman of the town of Jupiter, October 28th.

On the 14th instant a fire burnt over 9,500 acres of prairie and light timber, destroyed 90 tons of hay, one stack of grain, three log buildings, with 200 bushels of barley, and did damage to the amount of \$1,200. It seems to have been set in a low place on the south fork of Two Rivers, on the north-west quarter of Sec. 29, Township 161, Range 47 (town of Hazelton, adjoining on the north); was first noticed at 9 o'clock A. M. Here it seems to have made slow headway. The wind was light, S. W., drove it toward the river, and could have been stopped very easily after it was first noticed; but at about 2 o'clock P. M. the wind changed over to a high N. W. and drove the fire into this town as fast as a horse could trot. This fire came four miles wide all at once and did more damage in this town than all previous fires since the town was settled and could not be stopped, but went on without bound. The weather was dry, and high wind from the northwest.

Willard O. Gardiner, of the town of Richardsville, October 25th.

There was a prairie fire the 4th instant which originated on Sec. 8, by burning around hay stacks. It ran over 640 acres; destroyed two stacks of hay. Damage, \$40, and was put out in 12 hours by plowing and with wet sacks. Wet night was in our favor. Very dry and windy in the morning.

A. F. Johnson, of the town of Skane, October 24th:

On the 3d instant a field fire burnt over 40 acres and destroyed 50 tons of hay; damage, \$75. A hired man was set to burn stubble and the fire got beyond his control, burned over into Chas. Lander's meadow and up to field. The weather was dry.

On the 15th instant a prairie fire originating on land occupied by Chas. Lander, ran over 1,400 acres and destroyed 19 tons of hay; damage, \$43. It had got so much headway before it was noticed it could not be extinguished and it burnt up to a plowed field. Weather very dry and south-west wind.

H. N. Lindberg, of the town of Svea, October 27th:

On the 27th of September a fire burnt over 7,000 acres of mostly swamp land and destroyed 100 tons of hay. It was set by tramps who were after-



wards arrested. It went out when it got to the public highway. Weather was dry. The reason why we did not try to put it out was that the damage was done before we had time to get there.

On October 15th, a fire originating on Sec. 4, burned over 4,000 acres and destroyed 50 tons of hay. It was set to burn a little grass around the buildings. Sixteen persons were called to help extinguish it, which was done by plowing around it, also using wet sacks. Weather dry with much wind.

E. A. Johnson, of the town of Tegner, October 20th:

A prairie fire which originated on Sec. 15 this day, and supposed to have been caused by hunters, burnt over 800 acres but did no damage. Four persons were called to help extinguish it, which was done in ten hours after it started by plowing and using wet sacks. Weather windy.

Hans Haugen, of town of Tegner, October 22d:

On this date a fire, which was set by a railroad locomotive on Sec. 19, burnt over 500 acres, but did no damage. It was extinguished by using wet sacks. Weather windy.

Christian E. Braathen, of unorganized township 160, range 46, October 9th:

A forest fire, which originated on Sec. 27, on the 29th of September, burnt over about 80 acres of brush and destroyed some young poplar trees. It was extinguished in three hours after it started. We started to extinguish the fire with sacks, but we laid them aside and took brush, which was much better. Weather dry.

Same, October 14th:

On the 13th instant a fire, which originated about 5 P. M., on Sec. 35, burnt over 3,200 acres of swamp, brush and meadow and destroyed 100 acres of light poplar timber and about 80 tons of hay; damage, \$660. I did not know of the fire until the next morning, so we did not get it extinguished before 9 o'clock P. M. the 14th, which was done by use of wet sacks. Wind was southwest in the morning, but at noon turned to a storm from the northwest.

Same, October 24th:

A fire occurred the 13th, 14th, 15th and 16th instant, burning over about 5,000 acres of prairie, meadow, swamp, and brush land, partly settled. As far as I can learn it started in the town of Hazelton near the south line, went through the town of Jupiter (which joins this on the west) and came into this town about 12 o'clock at night and burnt the west side of the town. The weather was dry and very windy. The wind changed from south and brought the fire back again and the next day it turned and blew from the north again. It was extinguished by wet sacks, by plowing and burning firebreaks. We had to burn a fire strip about one mile long to save the rest of the town.

#### LAC QUI PARLE COUNTY.

Henry Tasto, Sr., of the town of Arena, November 30th:

A fire was set October 28 on Sec. 12 to a straw stack around which the party had made an insufficient firebreak. The weather was dry and windy



and the fire spread over six acres, destroyed a five-acre grove and five tons of hay. Damage, \$315. The neighbors came with horses and plow and kept on plowing around the fire till it was extinguished.

Louis Anderson, of the town of Lake Shore, November 18th:

About the 15th of October a fire, supposed to have been caused by ashes from a steam thresher or tobacco pipe, ran over fifty acres of prairie and meadow and destroyed 30 tons of hay of the value of \$60. It was extinguished in four hours after it started with the help of twelve persons using wet sacks and plowing a short distance. There was quite a breeze from the south.

Carl Redepinning, of the town of Walter, November 23d:

About the 15th of October a fire was set by a railroad locomotive on Sec. 26, and ran over twenty acres, burning only grass. It was extinguished, in three hours after it started, with help of six persons, simply by plowing and using wet sacks.

#### LINCOLN COUNTY.

Robert Boulton, of the town of Alta Vista, November 23d:

On the 23d of October, a fire, caused by burning thick stubble on Sec. 14, burned over 320 acres and destroyed three stacks of hay of the value of about \$75. It was extinguished, with the help of twenty persons, in four hours after it started, by plowing firebreak, by beating the fire with wet sacks and by back-firing. Weather was windy.

L. M. Townsend, of Ash Lake, December 14th:

May 10, a fire, which originated on vacant land in Sec. 11, burnt over 320 acres and destroyed three small stacks of hay of the value of \$10. It burnt itself out in the evening.

Amos E. Smith, of Diamond Lake, October 13th:

On the 25th of August, wind very high, a fire burnt over 30 acres of prairie; destroying nothing but grass. It was extinguished with wet sacks six hours after it started.

Joseph F. Schwartz, of the town of Hansonville, November 24th:

On the 13th of August a fire, caused by lightning, destroyed grain of the value of \$260. The fire was extinguished, with the help of ten persons, by plowing around it and hauling water. I would suggest there should be bells on school houses so as to give the alarm in case of fires.

John A. Stegner, chairman of the town of Hendricks, November 26th:

On the 21st of October a fire, caused by burning stubble, burnt over Sec. 33, being all wild land, also destroyed one stack of hay of the value of \$20. The wind was blowing strong from the east. I was one of a threshing crew that helped extinguish the fire, which was done in five hours after it started. The party who set the fire worked like a hero with team, thereby saving three other stacks of hay. This was the only prairie fire in town doing damage.

## LYON COUNTY.

C. H. Middleton, of the town of Lake Marshall, November 21st:

There was a fire on Sec. 33, vacant land, probably caused by hunters, which burnt over 320 acres, destroying nothing but dry prairie grass. The prairie fires in our town are confined to small areas, as most of the land is under plow.

## MARSHALL COUNTY.

John Craik, of the town of Bloomer, November 30th:

The 1st of September, a prairie fire, which originated on Sec. 36, burned over 320 acres and destroyed three stacks of hay, of the value of \$350. It went out itself seven hours after it started. Weather was windy.

Martin Besancon, of the town of Donnelly, November 27th:

The 15th to 20th October a fire, which started on Sec. 22, cause unknown, and burnt over 11,000 to 12,000 acres, destroying nothing but dry grass. No means were employed to put it out. Everybody seemed to think it was a good thing that it was burnt over.

J. M. Leslie, of the town of Comstock, November 23d:

A prairie fire occurred in September in the southeast part of Town 155, Range 46, and burnt over 2,560 acres, destroying nothing but dry grass. It came from south of the county line, ran northwest and was extinguished by rain.

Peter A. Risburg, of the town of East Valley, October 21st:

A fire October 19 burnt over 80 acres of brush. I had it extinguished with the help of two men in three hours after it started.

H. O. Ekerdalen, of the town of Holt, October 8th:

September 30th a fire, which came from the town of Spruce Valley, burnt over 800 acres of prairie in the northwest part of this town (156-43). Nine persons were called to help extinguish it, which was done in eleven hours. We used wet sacks and brooms made of green willows. The weather was windy and towards midnight still and damp.

N. C. Rood, of the town of Nilson Park, October 17th:

On the 14th instant a fire burnt over 300 acres of brush and prairie land in the northern part of this town (158-46) and destroyed one stack of hay of the value of \$40. It started away off in Kittson county, about 8 to 10 miles north of the north line of this county, and came down in full blaze, because the wind was very strong and everything dry. Twelve persons assisted in extinguishing the fire. We had one team and plow—sacks, blankets and lots of water, and every man worked well. I stayed up all night and looked after it half of the next day. I feel sure that we saved several hundred dollars worth of property.

D. L. Johnson, of the town of Spruce Valley, November 19th:

The middle of October, the weather being hot and windy, a fire burnt over 1,000 acres of swamp in the south part of the town (157-43) and destroyed an abandoned house of the value of \$30. Small patches were burnt in the town by settlers, who burnt old grass and brush, but no damage done.

John O. Wang, of the town of West Valley, November 14th:

On the 24th Oct., weather being dry, a fire burnt over seven acres of meadow. Damage, \$10. It was extinguished by me five hours after it started.

## MURRAY COUNTY.

M. Shaw, of the town of Holly, January 24th:

There was a fire September 27 in the southwest part of the town, which burnt over 640 acres of prairie and destroyed hay of the value of \$230. The weather was windy. It was extinguished in six hours after it started by plowing, also whipping with sacks.

M. Masterson, of the town of Iona, November 28th:

September 28 a fire, caused by hunters on Sec. 18, burnt over fifty acres and destroyed 30 tons of hay of the value of \$90. It was put out in two hours after it started by plowing and whipping it with wet grain sacks. Weather quite warm and calm.

## NOBLES COUNTY.

Louis M. Ipson, of the town of Elk, November 24th:

On the 2d of May a fire, which originated on Sec. 35, burnt over 40 acres and destroyed a small stack of hay. It was put out in a few hours after it started.

## NORMAN COUNTY.

P. J. Branken, of the town of Waukan, November 28th.

A fire in the east part of this town October 26 burnt over 500 acres of prairie and destroyed ten tons of hay of the value of \$30. It came from the White Earth Indian reservation. The weather was very dry with strong north-east wind.

## PIPESTONE COUNTY.

John Anderson, chairman of the town of Grange, October 5th:

August 30 a fire, set on section 14 by train on the Great Northern Railroad, burnt over 12 acres of prairie, 5 acres of grain and 8 acres of young trees. It was put out in two hours by plowing and beating with brush. Weather windy.

## POPE COUNTY.

H. C. Carpenter, chairman of the town of Hoff, December 3d:

A fire October 8th, which originated in the adjoining town of Clontarf, Swift county, from a passing freight train, ran into this town and destroyed 75 tons of hay of the value of \$225. It was extinguished in 7 hours by plowing and beating with wet sacks. Weather very dry and windy.

## POLK COUNTY.

Erik E. Skiple, chairman of the town of Badger, December 14th:

October 15 a fire, which came from the town of Grove Park (149-43) burnt over 1,000 acres of prairie and meadow. It was extinguished by plowing and using wet sacks. Weather dry and windy.

John P. Goerger, chairman of the town of Belgium, November 23d:

On the 23d September a fire originated on Sec. 11, caused by hunters. Burnt over about 2,000 acres. Weather dry. The fire ran as far as the N. P. R. R. track and then stopped.



C. P. Swanson, chairman of the town of Bray, December 3d:

September 27 a fire burned over about 200 acres of prairie in the north part of the town; destroyed nothing but grass. Was probably set by hunters in the town of Neemedal (154-45). It was extinguished in 8 hours after it started.

L. J. O'Neil, chairman of the town of Chester, December 2d:

On the 24th September a fire started in the southwest part of the town, in the swamp at the foot of the hills, burnt over 6,000 acres of prairie and brush and destroyed a large number of small groves and 76 tons of hay. Damage, \$200. Weather dry with strong southwest wind during the day. The fire was extinguished by a slight rain about midnight.

C. Wittensten, chairman of the town of Farley, November 18th:

October 20 a fire, which originated from burning straw on Sec. 24, burnt over about 20 acres of meadow and destroyed hay of the value of \$50. It was extinguished by plowing around it. Weather dry and high wind.

George M. Swift, chairman of the town of Grove Park (149-43), November 21:

In October, a fire in the north part of the town burnt over about 600 acres of prairie and meadow and destroyed a stack of hay. Damage, \$40. It came in from the towns north of this town. Fires were burning north of here for several days. Mike Hulquist and myself were out all night helping protect neighbors' property. No warning placards have been sent here for posting and very little attention has been given further than each one has plowed fire guards to protect his property. Nearly all the fires we have in this vicinity originate north of us every year.

H. Galbraith, chairman of the town of Hammond, November 7th:

On the 19th October a fire, which originated on Sec. 36, Town 149, Range 47, burned over several thousand acres of prairie in this town (148, range 47), and destroyed, as far as I can learn, 150 tons of hay. I suppose it was caused by parties burning around their hay stacks. It burned for about four days. It was windy the day it started and it burnt as far as the Sand Hill river on that day. It was burning the evening of the 24th.

Charles Perrault, chairman of town of Lake Pleasant, December 4th:

A fire that was set by sparks from a railroad locomotive October 25, on Sec. 3, burnt over about 50 acres of prairie and light timber; damage, \$100. There was a hot, dry wind from the west. There were three other fires the past season, one set by sparks from a locomotive, but they were all extinguished before any damage was done.

O. J. Tweet, chairman of the town of Norden, November 23d:

On the 25th October a fire on Sec. 18 burnt over 200 acres. Nothing destroyed but old grass. It was extinguished by simply cutting some willows and whipping it out.

John O. Waslie, chairman of the town of Neemedal (154-45), November 23d:

On the 24th September a fire, which was set to heavy grass along Goose lake, for the purpose, as supposed, to make better pasture next year, burnt



over 4,440 acres, and burnt the soil 6 to 8 inches deep. Estimated damage, \$2,220. It was extinguished in two days by plowing and fighting it. Very high wind from the southwest.

Same, December 8th:

A fire October 17, set by some person unknown, to vacant school land, burnt over 1,830 acres. Damage, \$915. It was put out in course of 40 hours by myself and six other men, by plowing one mile in a straight line east and west and by fighting it.

P. Filbin, chairman of the town of Parnell, November 19th:

On the 22d October a fire originated on Sec. 27 (Township 151, Range 46), about 12:30 P. M. It was seen immediately after a man had driven through the section on a road. It burnt over 1,000 acres. The weather was dry and windy, blowing from the north. It was extinguished in 20 hours by preventing it from crossing the graded roads; wet sacks also used. There were two other prairie fires about the same time which burned over about 2,000 acres, but did no other damage.

Nels M. Johnson, chairman of the town of Polk Centre, November 21st:

About September 23, a fire set to weeds that had been mowed and raked into piles on Sec. 25 (Town 152-45) burnt over 500 acres of meadow and destroyed about 20 tons of hay of the value of \$50. It was extinguished in four hours after it started, by a crew of threshers with wet sacks; also spades, teams and plows. No fire warden was present. Weather very warm and south wind. A farmer, by name of James Sutor, plowing near by with four horses, plowed through the flames in several places and saved farm buildings and grain stacks in three different instances with great danger for himself and teams; also, Charley Johnson performed heroic work in extinguishing the flames.

Joseph Pigeon, chairman of the town of Poplar River, December 15th:

September 12, at 3 P. M., weather being windy, a fire which originated on Sec. 17, from cause unknown, burnt over 1,000 acres and destroyed one stack of hay. Damage \$50.

Ole Olson, Jr., chairman of the town of Russia, November 9th:

On the 24th October a fire burnt over about 3,200 acres on Secs. 6, 7, 5, 8, 9, 16 and 15. No damage. Am unable to learn how the fire originated. There was also a prairie fire October 19th, which swept over all of section 31 and part of 32. No damage. The fire came in from the township west.

Gust. Christianson, chairman of the town of Skandia (147-47), November 6th:

About the 25th October a fire burnt over 300 acres of swamp and meadow in the northwest part of the town. No damage. Not known how it originated. Nothing was done to stop it and it was put out by snow the night of the 30th.

W. R. Long, chairman of the town of Tilden, November 20th:

On the 26th October a fire on Sec. 17 burnt over 300 acres of principally prairie, and destroyed one house, which was partly down. Supposed to have been caused by hunters. It went out itself in 18 hours after it started.

A. P. Moen, chairman of the town of Vineland, November 19th:

About the 27th of October a fire in the east part of this town (148-48) burnt over 10,000 acres and destroyed some hay. It went out of itself. It came from the town of Hammond, lying due east. There was fire in the swamps east of this town several days before it struck this town.

#### REDWOOD COUNTY.

A. J. Weldon, chairman of the town of Charles, November 30th:

On the 14th August a fire, caused by burning mustard which had been rolled, spread over 80 acres of field and prairie and destroyed a few shocks of wheat of the value of \$10. The weather was still and hot. If the wind had risen that day the fire would have swept the country of thousands of dollars, as it was very dry.

J. A. Turnbull, chairman of the town of New Avon, November 21st:

A fire on Sec. 18, October 15th, caused, so far as I can ascertain, by accident, burnt over 200 acres of meadow and destroyed 50 tons of hay in the stack. Damage, \$75. It was extinguished in three hours after it started, by plowing. Weather fair with northwest wind.

August Sipetzky, chairman of the town of Sundown, November 30th:

On the 15th September a fire on Sec. 8, caused by burning stubble, spread over 20 acres of field and destroyed four stacks of wheat. Damage, \$60. It was extinguished by plowing in two hours.

Theodore Daub, chairman of the town of Vail, November 24th:

On the 5th October a fire on Sec. 14, caused by a threshing machine, burnt over five acres. No damage.

#### RENVILLE COUNTY.

John O. Colsrud, chairman of the town of Crooks, November 30th:

There have been some small fires in this township this past fall, caused by farmers trying to burn wheat stubble to kill the Hessian fly; in hard wind the fire has gone a little farther than was expected but they have immediately controlled it by plowing.

H. J. Jungclaus, chairman of the town of Osceola, November 27th:

On the 14th September a fire, set by some unknown person on vacant land in section 17, burned over 30 acres of prairie and destroyed 30 tons of hay; damage, \$60. It was put out in five hours by beating it with wet rags. No fire warden was present. Mrs. Larson worked the hardest and saved two stacks.

Herman Schmechel, chairman of the town of Wellington, December 4th:

On the 3d September a fire on Sec. 14, caused by burning stubble, spread over 40 acres of field and meadow and destroyed four wheat stacks of the value of \$90. It was extinguished by plowing around the field and meadow. Weather dry and still.

## ROSEAU COUNTY.

M. Barto, chairman of the town of Barto (161-43), October 21st:

Through the carelessness of some person unknown, a fire started September 23d on Sec. 18 and burnt over 19,000 acres and destroyed timber, hay, claim houses and farm machinery; damage, \$1,000. A high wind prevailed. It burned during five days in this town and extended into the town of Soler adjoining on the north. It was extinguished by burning itself out.

S. A. Anderson, of the town of Dieter, October 27th:

On the 25th instant a fire, originating on Sec. 9, from cause unknown, spread over 700 acres of prairie and brush land and destroyed about 30 tons of good hay. Damage, \$90. It was encircled and put out by hand, twelve persons assisting.

Sven E. Oie, of the town of Dieter, October 27th:

On the 25th instant, about 9 o'clock A. M., a fire, which originated on section 6, burnt over 1,100 acres of prairie and brush land and destroyed about 50 tons of good meadow hay. Damage, \$150.

R. A. Flaa, chairman of the town of Malung, November 27th:

On the 14th October, at 11 o'clock, a fire originated from cause unknown on land occupied by Mrs. Oland, in Sec. 28, and burnt over 800 acres of brush land, destroyed six tons of hay and a claim shanty. Damage, \$40. Hard northwest wind. It was extinguished in 10 hours.

Fred Andol, chairman of the town of Pohlitz (163-42), December 29th:

On the 22d September a fire, which originated over by the sand ridge about two weeks before it came here, burned over 2,600 acres in the southwest part of this town; destroyed four stacks of wild hay. Damage, \$80. It was extinguished with willow brooms and by setting backfires. I staid with the fire two days and one night, and without letting my men go home for meals, and I did not go away myself until the fire was extinguished.

[To a special inquiry Mr. Andol replied]:

The sand ridge begins in the town south of this town, runs southwesterly and ends about twenty miles east of the village of Stephen. Its elevation is about 20 feet and breadth from ten to forty rods. It is covered with brush and timber. The stage road lies on this ridge and is settled the most of the way.

Thos. P. Kelly, chairman of the town of Soler (162-48), November 14th:

On the 23d September a fire, which came from the town of Barto, adjoining this on the south, burnt over 19,000 acres of light timber and prairie and destroyed hay, houses, groves and machinery. Damage, \$1,000. Weather dry and windy. The fire continued two weeks. The most of the men here are compelled to go out to work in the fall and only the women were left to protect their own places. I learn from good authority that the fire started on the northeast quarter of section 29, township 16r, range 43, and that the man who set it has left for Dakota till matters quiet down.



Matt Barto, of the town of Soler, October 21st:

On the 1st instant a fire, which originated in the town of Barto, burnt over 24,000 acres of field, prairie, brush and light timber; destroyed hay, claim shanties, houses and machinery. Damage, \$1,500. The fire could not be extinguished; settlers protected themselves as best they could. Weather windy first day, second day calm.

Hans Tellefson, chairman of the town of Spruce, November 28th:

The 14th October a fire on Sec. 31 burnt over 60 acres of brush and meadow and destroyed 3 tons of hay. Damage, \$6. It was put out by backfiring. Weather windy and from the west.

L. P. Lofsted, of the town of Spruce, Nov. 27th:

October 24th a fire, which originated on Sec. 7, burnt over 300 acres of swamp and brush; destroyed 30 tons of hay of the value of \$60. It was put out by backfiring. Weather windy.

N. E. Nelson, of the town of Spruce, November 30th:

On the 25th October a fire in the northeast part of this town (162-39) burnt over 3,500 acres of swamp and prairie. It is supposed to have been set by two men from another town hunting chickens and looking for cedar. Was extinguished by backfiring and using wet sacks.

Charles Hedlund, chairman of the town of Stafford, October 15th:

A fire the 3d October, which originated on Sec. 15, being vacant land, destroyed 19 tons of hay. Damage, \$28.50. It was extinguished by plowing and using wet sacks. Weather warm and windy.

#### STEVENS COUNTY.

A. A. Peck, chairman of the town of Hodges, October 12th:

On the afternoon of Sept. 3 a fire on Sec. 19, caused by a railroad locomotive, burnt over three acres and destroyed wheat in shock of the value of \$15. It was extinguished in two hours by plowing around it. Weather very dry.

On the 23d September a fire on Sec. 28, caused by a locomotive, burnt over 60 acres of wild prairie. It burnt to breaking and went out itself. Weather dry.

George Griffith, of the town of Pepperton, October 9th:

A fire on the 8th instant on Sec. 15, caused by a threshing engine, burnt over about 320 acres of prairie. It was put out in ten hours after it started, by six persons, who were called to help, with wet sacks. Weather dry and windy.

Same, October 18th:

On the 16th instant a fire in the northwestern part of the town of Morris, caused by a hired man setting fire to stubble, burnt over 340 acres of field and prairie and destroyed about 100 tons of hay. Damage, \$250. It was extinguished in eight hours after it started by work of ten persons hauling water with team and using wet sacks. Weather dry and a very high wind.



## SWIFT COUNTY.

A. O. Grendahl, chairman of the town of Camp Lake, November 19th:

On the 14th October a fire, caused by burning stubble on Sec. 11, burnt over 80 acres of prairie and destroyed some hay. Damage, \$20. It was put out in three hours by seven persons with the use of wet rags.

Martin McAndrew, chairman of the town of Tara, November 28th:

On the 1st day of October a fire on Sec. 11 burnt over 300 acres of field and prairie and destroyed seven stacks of hay. Damage, \$105. A hired man set fire to stubble after plowing a firebreak around the field, fire jumped the break to prairie and meadow. Every effort was made to extinguish it by neighbors, which was done in 12 hours after it started.

Olof Olsen, chairman of the town of Torning, November 28th:

On September 25 a fire, caused by burning stubble on Sec. 28, burnt over 50 acres of meadow and destroyed ten tons of wild hay of the value of \$25. It was extinguished in three hours, eight persons helping, by plowing and smouldering. Weather warm and windy.

## TRAVERSE COUNTY.

E. J. Hurley, chairman of the town of Taylor, November 21st:

On the 22d September a fire on Sec. 17, caused by burning stubble and straw, burnt over 80 acres. It was extinguished in three hours by plowing firebreaks. Weather was windy.

## WILKIN COUNTY.

John A. Falla, chairman of the town of Akron, March 19th, 1897:

On or about September 20 a fire burnt over 5,700 acres of prairie, field and meadow. Cause unknown. Weather was still all day. I was sick and could not attend, and as no damage was done I did not pay any attention to it, but as I am elected chairman again I will try and do what I can this year.

Philip Heider, chairman of the town of Andrea, December 10th:

On the 26th September a prairie fire burnt over 2,400 acres in the southwest part of the town. No damage. Was caused by the carelessness of hunters. It died out during the night time from heavy dew.

Hugh McDonald, chairman of the town of Brandrup, November 25th:

A field fire on Sec. 2, caused by burning a straw pile after the machine had left the setting, burned over 20 acres of stubble and destroyed nine stacks of wheat of the value of \$350. It was extinguished in two hours after it started by a threshing crew.

Knudt O. Hills, chairman of the town of Manston, December 7th:

In the last part of October a fire, which originated on Sec. 36 (school land), burnt over about three sections, but did no damage. It was put out in six or eight hours after it started by backfiring. Weather windy and dry.

Stanislaus Bulik, of the town of Mitchell, October 13th:

A big prairie fire came up from the south on the 7th of this month and would have done a great damage to our town but I ordered out a threshing crew and we stopped it without its doing much damage. Where the fire started I cannot tell.

Same, December 18th:

The fire of October 7th burnt over 1,500 acres of prairie and meadow. It did no damage that I know of in this town. It was extinguished in 14 hours after it came into this town by plowing, also by pounding it with wet bags. The weather was dry and windy. It is said that the fire was started by the N. P. R. R. near Breckenridge, and it came in a northwest direction till it struck this town.

#### YELLOW MEDICINE COUNTY.

Chresten Olson, chairman of the town of Florida, September 15th:

On the 29th August a fire, set by railway freight train on Sec. 23, burnt over 600 acres, 70 acres being field and two acres timber and apple trees; destroyed four stacks of wheat and two stacks of hay. Damage, \$285. Fourteen persons were called to help extinguish it, which was done in five hours after it started by teams plowing in the field and using shovels and wet rags. Weather warm and windy.

Same, November 24th:

The railroad company have admitted having caused the fire as reported August 29, and settled for the damage.

Gust. Miller, chairman of the town of Hazel Run, October 29th:

A fire on the 3d instant, caused by men trying to burn around their hay stacks on Sec. 11, burnt over 250 acres of prairie. It did no damage, as we fought it out with wet sacks before it destroyed any property. The weather was dry and a hard wind blew from the south.

Same, October 19th:

There was no fire warden assisted in putting out the fire except myself. When I learned that the prairie was on fire I took my team and went to the houses of those neighbors that I knew had property unprotected and informed them that the prairie was on fire, and then I started for the fire myself. When I got there there were some parties there already engaged in fighting the fire and the rest soon followed, and we got it out just about dark.

## ANNUAL REPORTS OF FIRE WARDENS.

The Forest Preservation Act of April 18, 1895, requires the Chief Fire Warden to investigate the extent of the forests in the state, together with the amounts and varieties of the wood and timber growing therein, the damages done to them from time to time by forest fires, and the causes of such fires, the method used, if any, to promote regrowth of timber, and other important facts relating to forest interests; the information so gathered to be included in his annual report.

With a view of obtaining information on these points a blank containing questions was mailed to chairmen of town boards and to fire wardens in unorganized territory. The manner in which fire wardens answer or neglect to answer questions submitted to them affords some test of their willing disposition and intelligence. It makes this office better acquainted with them and better able to judge of their reliability and efficiency.

A copy of the questions is herewith submitted and following that extracts will be quoted from some of the answers of fire wardens.

## STATE OF MINNESOTA.

## FIRE WARDEN'S ANNUAL REPORT.

[The Forest Preservation Act of April 18, 1895, requires the Chief Fire Warden to investigate the extent of the forests in the state, together with the amounts and varieties of the wood and timber growing therein, the damages done to them from time to time by forest fires, and the causes of such fires, the methods used, if any, to promote regrowth of timber, and other important facts relating to forest interests; the information so gathered to be included in his annual report. It is partly to procure information for such report that fire wardens are requested to fill and promptly return this blank.]

Answers to be mailed to C. C. Andrews, Chief Fire Warden, St. Paul, Minn.

1. The undersigned is fire warden in town No....., range....., in the county of.....and his post office is.....

[State below the other congressional townships, if any, in your organized township or the townships which you have charge of, in case your territory is unorganized.]

Township No..... Range No.....

Township No..... Range No.....

Township No..... Range No.....

Township No..... Range No.....

Township No..... Range No.....

Township No..... Range No.....

Question 1. If any forest fire occurred in your town or district in 1896 that has not been reported to the Chief Fire Warden, state when and where it occurred, number acres burned over, damage done, its cause and how extinguished. If no fire occurred in your town, state what, if any, extra precautions were taken by you.

Answer.....

Question 2. What, if anything, has occurred in the administration and execution of the law, worthy of comment or criticism?

Answer.....

Question 3. What, if any, recommendation would you make in addition to what is in the Forest Preservation Act of April 16, 1895, for better preventing and extinguishing forest fires?

Answer.....

Question 4. What are the principal dangers or causes of forest fires and how can they best be lessened?

Answer.....

Question 5. Do you notice any increase of popular interest and sentiment for forest preservation and care in preventing fires? If so, how has it been manifested, and what, if anything, have you done to promote this interest?

Answer.....

Question 6. If there are persons who are opposed to the Forest Preservation Act, what, if any, reasons do they give?

Answer.....

Question 7. In case of a serious forest fire in your township, about how many able-bodied male persons over 18 years of age could be depended upon to help extinguish it, as provided by Section 6 of the Forest Preservation Act?

Answer.....

Question 8. What is the prevailing kind of timber in your town and is it dense or open? (If you have charge of more than one township state as to each town.) About how much of the surface is covered by windfalls? How much consists of swamp? If there is a heavy growth of white pine, in what part of the town is it situated?

Answer.....



Question 9. About how much land is there (in acres) in your township (or townships) that is only fit for bearing pine? In what part of the township is it situated, and is it hilly or level?

[By land only fit for pine is meant land which on account of poor soil or very broken or rocky surface would be unfit for field crops or permanent pasture.]

Answer.....

Question 10. To what extent is there a natural growth of young white pines in your township and what is the prospect for the regrowth of such pines if fires are kept out?

Answer.....

Question 11. What, for a rough estimate, do you consider the amount of damage which, previous to the year 1895, has been done in your township (if more than one township, state as to each township) by forest fires, and give some of the facts which support your conclusion?

Answer.....

Question 12. Suppose a farmer has ten acres of white pine, whether in one or several patches, standing sufficiently thick, on soil that is unfit for agriculture or for permanent pasture,—in what amount would such body of pine, when ten years old, increase the value of his farm? And please explain the way you arrive at your conclusion.

[NOTE.—The yield tables of Saxony, Germany, show that an acre in fourth-rate locality, fully stocked with Scotch Pine, at the age of ten years contains 2,600 feet, board measure (though of course not merchantable timber); at the age of twenty years, 6,300 feet; at the age of thirty years, 11,100 feet; at the age of forty years, 16,100 feet; at the age of fifty years, 21,400 feet. We thus see that ten acres of such pine on fourth-rate soil would at the age of fifty years contain 214,000 feet. In locality of first quality, a ten acre tract of such pine at fifty years of age contains 580,000 feet.]

Answer.....

Question 13. The State of Minnesota, as you are probably aware, has for many years paid bounties for planting and maintaining trees on the prairies. Suppose that the state were to donate white pine seedlings, about one foot in height, to people who would suitably plant them,—please give the address of a few citizens in your town, if there are any, who you think would probably accept and carefully plant and maintain them.

Answer.....

Question 14. About how many acres have been cleared of forest in your town? And what effect, so far as you have observed, has such clearing had upon the supply of water in lakes and streams?

Answer.....

Question 15. How many lumber camps are there in your town this season? About how many feet of pine or other logs do you estimate are being cut in your town (or towns, and in which) the season of 1896-1897?

Answer.....

Question 16. Will you undertake to observe and note the years in which the white pine bears seed bountifully? Any suggestions you can offer for gathering seed of the white pine (without public expense) will be of interest.

Answer.....

Question 17. To what extent are new settlers coming into your town to locate permanently? What are some of the inducements for settlers? What proportion of your town (or towns) will probably become occupied by settlers and brought under cultivation?

Answer.....

Question 18. How many miles of passable natural or artificial wagon road are there in your town, and where situated, and about how much is expended annually for its maintenance?

Answer.....

Question 19. What is the amount of your account presented, or to be presented, for your services as fire warden in 1896?

Answer.....

Question 20. Please state any other fact that you think may help the cause of forest preservation.

Answer.....

P. O.....

Date..... Signature.....

Name of Organized Township.....

### EXTRACTS FROM ANSWERS OF FIRE WARDENS.

Question 3. What, if any, recommendation would you make in addition to what is in the Forest Preservation Act of April 18, 1895, for better preventing and extinguishing forest fires?

#### AITKIN COUNTY.

James McAskill, of Hazelton:  
To have the fire wardens paid.

#### BECKER COUNTY.

Knud Benson, of Lake Eunice:  
The law is good as it is if enforced.

W. H. Colgrove, of Osage:

A great many of the fires could be prevented if the Indians were kept on their reservation, for everywhere they camp they are almost sure to leave some fire.

## BELTRAMI COUNTY.

Robert Dunn, of Town 145, Range 35:

To allow no clearing fires to be set after June 1 of each year.

## BENTON COUNTY.

John Wilson, of St. George:

Nothing, only enforce it.

## CARLTON COUNTY.

John Atkinson, of Atkinson:

To make lumbermen burn their tree tops and rubbish after logging early in the spring before there is danger of fire spreading.

## CROW WING COUNTY.

C. H. Adams, of Deerwood:

To see that the present law is enforced and posters are kept posted up. I have noticed in some of my travels posters have been torn down by mischievous boys.

## HUBBARD COUNTY.

Daniel Buchacker, of Town 140, Range 33:

The compelling of all companies which cut logs during the winter to burn the tops by the first day of May following.

Frank Kruft, of Towns 141 and 142, Range 33:

To have all combustible matter burnt up early in the spring by the parties who have been logging or cutting cord wood during the winter.

John F. Wilcox, of Town 144, Range 34:

I think if the state would employ fire wardens and pay them direct they would take more interest in the work. As it is now the county commissioners set the price of our work.

## ITASCA COUNTY.

A. A. Chase, of Deer River:

The shooting or hanging of a few vagrants that mainly cause the fires.

C. D. Lewis, of Iron Range:

That lumbermen be compelled to burn their brush in the spring before fire will run in the standing timber.

## KANABEC COUNTY.

John Keenan, of Comfort:

I think a few roads if once opened and kept in repair would check the fires.

## PRINCIPAL CAUSES OF FOREST FIRES.

Question 4. What are the principal dangers or causes of forest fires and how can they be lessened?

## AITKIN COUNTY.

E. O. Brown, of Kimberly:

Railroad engines, Indians, hunters and cruisers. Railroad companies should be compelled to keep their right of way clear from combustible material.

O. G. Peterson, of Nordland:

Camp fires left by Indians and hunters.

Lars L. Anderson, of Town 46, Range 24:  
Hunters.

I. O. Winters, of Malmo:

Campers and men burning their clearings.

## BECKER COUNTY.

Charles S. Palmer, of Evergreen:

Careless hunters and farmers burning their brush.

George Dorman, of Holmesville:

Burning brush and camp fires.

Emanuel Berg, of Lake Park:

Long continued drought and carelessness in setting fires.

Hans Deierhoi, of Richwood:

Principal cause of fires is the burning of brush in dry weather.

Mischel Warter, of Silver Leaf:

They can be lessened by teaching the principles of forestry in the public schools.

B. F. Briggs, of Spruce Grove:

Burning swamps for meadow lands. Can only be lessened by constantly cautioning people to be careful.

## BELTRAMI COUNTY.

Albert B. Johnson, of Copley:

Clearing land is the principal cause. April is the best time to burn brush.

J. P. Nygaard, of Popple:

Principal causes are hunters and Indians camping in the woods.

Henry Peck, of Town 147, Range 36:

Principal causes are camp fires and hunters.

Charles E. Scott, of Towns 143 and 144, Range 36:

Lumbermen leaving the brush on the ground after taking off the timber. By having the brush piled and burnt in the spring.



## BENTON COUNTY.

M. J. Lynch, of Glendorado:

The principal dangers are from hunters and tramps.

James McCulloch, of Graham:

In my opinion the principal dangers are from hunters.

W. J. S. Stuart, of Granite Ledge:

From railroads and outside hunters.

## CARLTON COUNTY.

Peter Jackson, of Knife Falls:

The principal danger of fire in this town is from clearing land, and I think the best way to lessen it would be to have a man do nothing else in the dry time but watch those places.

H. M. Waldref, of Mahtowa :

The principal cause is from willfully setting fires and the only remedy is to prosecute some of the violators of the law.

William Sheils, of Twin Lakes:

Dry weather.

## COOK COUNTY.

Emil Eliason, of Hoveland:

From explorers. By posting placards.

Olof Berglund, of Town 61, Range 1 W.:

From burning or clearing in dry weather.

Chester S. Durfee, of Towns 61 and 62, Range 2 E.:

From tourists, fishing parties, explorers, hunters, woodsmen, surveyors and many inexperienced homesteaders.

John C. Kelly, of Towns 61 and 62, Range 5 W.:

Shotguns and mineral prospectors.

C. A. A. Nelson, of Lutsen:

Cruisers looking for lands starting fires for their tea and failing to extinguish them.

George Wartner, of Gunflint Lake:

Camp fires left unextinguished by prospectors, etc.

## CROW WING COUNTY.

Frank Mills, of Maple Grove:

Hunters and men going a good ways from home to make hay.

## DOUGLAS COUNTY.

V. H. Benn, of Holmes City:

Farmers putting out fire and not watching it.

Wm. Knapton, of La Grand:

Principal cause is railroads, and next hunters.

Anton Kondela, of Lake Mary:

By the farmers in the woods clearing and burning the brush off.

#### HOUSTON COUNTY.

Thomas Corcoran, of Brownsville:

Nonresident hunters are the cause of most of the forest fires in this locality.

By the time the hills are on fire the hunters are gone.

#### HUBBARD COUNTY.

M. L. Moore, of Akley:

Settlers clearing up land, hunters and campers. Post notices and keep it on their minds.

R. S. Wagner, of Badoura:

Hunters leaving camp fires. The best thing is to make an example of some of them.

Chris. Anderson, of Henrietta:

Nonresident hunters and fishers.

DeWitt Clason, of Towns 142 and 143, Range 35:

Old slashings are principal places where the Indians burn off the grass and down timber for early feed, or rather late feed, for deer.

#### ISANTI COUNTY.

Eric Tornberg, of Maple Ridge:

The principal danger in my opinion is by setting fire to brush heaps and other rubbish in the latter part of the summer, not thinking about the terrible result that may accrue in a few days of dry and hot wind.

J. H. Chapman, of Spencer Brook:

Carelessness of duck and chicken hunters and of some farmers in clearing land. Can best be lessened by a rigid enforcement of the present law.

Peter Soderstrom, of Stanford:

The most danger is by hunters coming up from the cities in the fall. They have done the most damage by fire in this town.

#### ITASCA COUNTY.

A. A. Chase, of Deer River:

The accumulation of dead and down timber and the class mentioned in my answer to question No. 3, and the dangers can only be lessened by the removal of one of them.

Joseph H. Gardner, of Town 63, Range 23:

Camp fires in dry weather and burning old choppings to destroy timber stealing.

E. R. Lewis, of Ray:

Fires are generally started by Indians; sometimes by cruisers and prospectors camping out.

G. C. Hooker, of Swan River:

The principal cause of fires in this locality is trespassers setting their old choppings on fire to hide their works.

W. A. Dafter, of Town 70, Range 25:

In this locality the chief dangers of forest fires are from carelessness of prospectors and cruisers passing through the country and from fires started by settlers in clearing land. Enforce the law fully.

C. D. Lewis, of Iron Range:

The danger is from hunters and cruisers camping out.

#### KANABEC COUNTY.

C. P. Larsen, of Arthur:

Most of the fires are set by railroad engines.

W. F. Hillman, of Hillman:

Carelessness by settlers and logging railroads.

George Hinchey, of Kanabec:

The principal danger is caused by railroad locomotives and section men burning right of way.

#### LAKE COUNTY.

R. H. Slater, of Beaver Bay:

From Indians and explorers.

A. H. Wegner, of Towns 62, 63 and 64, Range 8:

From homesteaders and travelers.

#### MILLE LACS COUNTY.

G. B. Reeves, of Greenbush:

Sparks from locomotives.

#### MORRISON COUNTY.

W. Wolke, of Buh:

Threshing engines and hunters are far too careless.

A. Lund, of Cushing:

Fire getting away from parties burning meadows too late.

Watkin Davis, of Elm Dale:

Setting fires to old stumps and brush piles and letting it go.

John Brown, of Parker:

Most all the fires originate from burning marsh in the spring in order to obtain more grass for hay.

Charles L. Nelson, of Scandia Valley:

Blueberry pickers and emigrants.

## OTTER TAIL COUNTY.

F. C. Cole, chairman of town of Homestead:  
From people who willfully set fire just to see it run.

## PINE COUNTY.

J. F. Wilkin, chairman of town of Finlayson:  
Railroad engines.

Geo. L. Stevens, chairman of town of Rock Creek:  
The causes of fire here are where men are clearing up land and burning brush. The fire sometimes gets away from them.

## ST. LOUIS COUNTY.

Martin Lepak, chairman of town of Gnesen:  
Hunting parties and land lookers. By prosecution as required by law.

J. F. Hobbes, of unorganized territory:

Causes aside from locomotives are from unextinguished camp fires of indifferent and lawless men passing through the woods. These fires may be materially lessened by arrest and punishment of the culprits and a forest patrol.

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## INCREASE OF POPULAR INTEREST.

Question 5. Do you notice any increase of popular interest and sentiment for forest preservation and care in preventing fires? If so, how has it been manifested, and what, if anything, have you done to promote this interest?

## AITKIN COUNTY.

A. H. Engberg, of Farm Island:

Yes, everyone seems to be more careful about fire. Our warning cards do good work.

E. O. Brown, of Kimberly:

People in general are more careful in handling fire.

J. A. Sandborg, of Malmo:

Interest decreasing, as the county commissioners disallowed bills for services in extinguishing fires.

O. G. Peterson, of Nordland:

I do. People who reside here are more careful about setting fire on meadows.



## BECKER COUNTY.

Knud O. Benson, of Lake Eunice:

I think I do. People are very careful how they burn brush and rubbish.

## BELTRAMI COUNTY.

Robert Dunn, of Town 145, Range 35:

Yes, amongst hunters and campers.

J. P. Nygaard, of Popple:

Yes, we all expect a railroad through here and then wood and timber will be worth something.

Henry Peck, of Town 147, Range 36:

I notice a big increase of popular interest.

Charles E. Scott, of Towns 143 and 144, Range 36:

Yes, considerable; the settlers have been more careful about setting fires. I have talked with quite a number of them and tried to make them understand that the timber is a benefit to the settlers as well as to the lumber companies.

Charles R. Wetsel, of Towns 147 and 148, Ranges 32 and 33, (in answer to question 6):

There are a few who oppose the Act on account of their ignorance or a natural inclination to be bull-headed.

## BENTON COUNTY.

W. J. S. Stuart, of Granite Lodge:

I have among settlers, but not with the railroad company.

John Wilson, of St. George:

Yes, not so much burning of brush in the fall when it is dry.

## COOK COUNTY.

John C. Kelly, of Towns 61 and 62, Range 5, West:

In the last two seasons there has been a marked decrease in the number and destructiveness of fires in this county, owing, no doubt, to a general knowledge of the law of 1895.

Claus C. Monker, of Grand Marais:

I do. People are more careful.

H. J. Redmyer, of Towns 58 and 59, Ranges 4 and 5:

It seems that people who explore for minerals are more careful.

## CROW WING COUNTY.

Frank Mills, of Maple Grove:

I do not.

## DOUGLAS COUNTY.

Parnell Atkinson, of Carlos:

I have cautioned parties and instructed them to be very careful when clearing not to let the fire get away from them.

Wm. Knapton, of La Grand:

More respect is paid to the placards this year than last.

## HOUSTON COUNTY.

Thomas Corcoran, of Brownsville:

Yes, some of the taxpayers are very thankful for the Act.

## HUBBARD COUNTY.

M. L. Moore, of Akley:

People seem to respect the law and are more careful than they were before.

R. S. Wagner, of Badoura:

There is an interest in this town.

H. J. Campbell, of Todd:

There seems to be more interest. Have urged the necessity of great care with fire.

C. C. Arnold, of Town 139, Range 33:

Yes, people begin to see that if fires are not kept out it will not be long before they will have to buy coal for fuel.

## ITASCA COUNTY.

A. A. Chase, of Deer River:

No to the first part of the question; to the last of same I have posted the notices furnished by the Chief Fire Warden. The interest manifested has been the tearing down and carrying away or destroying some of these same notices. I think it will be useless to undertake to create a sentiment for forest preservation in localities where the people have forest that they wish destroyed.

S. C. Hooker, of Swan River:

All settlers take an interest in preventing forest fires.

## KANABEC COUNTY.

W. F. Hillman, of Hillman:

Yes.

## LAKE COUNTY.

R. H. Slater, of Beaver Bay:

Yes, by care in clearing land; by explaining the benefits of such a course.

## TODD COUNTY.

W. A. Walker, chairman of town of Moran:

Most settlers take an interest in preventing fires, but not enough to speak of until fire is near them.

## EXTENT OF YOUNG WHITE PINE.

Question 10. To what extent is there a natural growth of young white pines in your township and what is the prospect for the growth of such pines if fires are kept out?

## AITKIN COUNTY.

O. G. Peterson, of Nordland:

A very small portion. The prospect is good for a regrowth.

I. O. Winters, of Town 44, Range 25:

There is some young white pine in Township 44, Ranges 23, 24 and 25.

## BECKER COUNTY.

Charles S. Palmer, of Evergreen:

One thousand acres.

Andrew Bjorkkel, of Green Valley:

Thousands at least.

George Dorman, of Holmesville:

Good.

B. F. Briggs, of Spruce Grove:

Very little.

## BELTRAMI COUNTY.

Robert Dunn, of Town 145, Range 35:

To large extent, and the prospects are good.

Charles Durand, of Red Lake:

I have not seen any young growth of white pine that is worth mentioning.

Albert B. Johnson, of Copley:

Young white pine is spread all over; prospect is good for regrowth if fires could be kept out.

Robert Kittleleson, of Towns 148 and 149, Range 30:

All timber in these townships is young and grows very fast.

J. P. Nygaard, of Popple:

I do not think there is any prospect for a regrowth of pine in these towns. What pine there is here is old trees. Have been too many fires here before.

Henry Peck, of Town 147, Range 36:

There are several sections covered with pine running from one foot to 16 feet in height and the prospect for regrowth would be very good if fire is kept out.

Charles E. Scott, of Towns 143 and 144, Range 36:

Jack and Norway pine are coming very rapidly. There is a good prospect for the regrowth of white pine; it does not come as abundantly as the others, but just as thrifty.

## BENTON COUNTY.

J. P. Patock, of Alberta:

Good if fire is kept out.

W. J. S. Stuart, of Granite Ledge:

There is considerable young pine that would be valuable if fires were kept out.

## CARLTON COUNTY.

William Sheils, of Twin Lakes:

Small. Possibly 200 acres; they are now from one to ten feet high.

J. C. Nyhus, of Moose Lake:

There is a small extent of such pines.

## COOK COUNTY.

Chester S. Durfee, of Towns 61 and 62, Range 2, East:

There would probably be in fifty years a growth of the young white pine now growing, about 215,000 feet. The regrowth probably as much if no fires occur.

John C. Kelly, of Towns 61 and 62, Range 5, West:

A very slight extent. According to my observation white pine seldom reproduces itself on the same ground where it has been burned.

Claus C. Monker, of Grand Marais:

Only about 80 acres.

## CROW WING COUNTY.

Joseph Kimball, of Town 138, Range 28:

A good many young pines growing. The regrowth is good if fires are kept out.

## HUBBARD COUNTY.

M. L. Moore, of Akley:

In time there will be a good deal of white pine if fires are kept out.

## ISANTI COUNTY.

Eric Tornberg, of Maple Ridge:

On about three sections on the southern line is a growth of small pines in some places which seem to thrive very well if preserved from fire.

## ITASCA COUNTY.

Alex. Lafrance, of Bass Brook:

If fire is kept out there is a good outlook.

A. A. Chase, of Deer River:

Very little natural growth. For regrowth seed would have to be furnished.



Joseph H. Gardner, of Town 63, Range 23:

It will never amount to much unless the state looks sharp, as the big pine has been cut and the land holder is done with the land. Ninety-nine out of one hundred have disappeared.

Maurice Moore of Town 150, Range 29:

Young pine does not seem to take hold in this country for some reason or other.

Edward E. Moore, of Town 152, Range 29:

Plenty of pine here now, both young and old.

E. R. Lewis, of Ray:

No prospect. The second growth is either Norway or jack pine.

S. C. Hooker, of Swan River:

I have been here seven years. Cannot notice the regrowth of the young pine. Most all land where the pine is cut off is burnt over the following spring.

#### KANABEC COUNTY.

C. P. Larsen, of Arthur:

The prospects are good.

John Keenan, of Comfort:

There is good prospect if fire is kept out.

W. F. Hillman, of Hillman:

There is not much. If the fires were kept out no doubt pine would grow.

#### MILLE LACS COUNTY.

John W. Hall, of South Harbor:

There is very little young growth of white pine, but if fire is kept out a young growth will start in a few years.

Ray Davis, of Town 39, Ranges 26 and 27:

There are many groves or bunches of sapling pine and if fire can be kept out they will be valuable in time.

#### MORRISON COUNTY

C. Cheeley, of Morrill:

There is no very small growth of pine, and hundreds of theives are cutting pine from five inches in diameter up to the largest.

Charles L. Nelson, of Scandia Valley:

Two or three sections [640 acres in a section].

#### PINE COUNTY.

John E. Norstrom, chairman of town of Pokegana:

If vandalism and fires are under control the prospect for regrowth will be good.

## ST. LOUIS COUNTY.

John Gill, chairman of town of Nichols:

There is but little young white pine. If fires are kept down I think it will grow.

James Campbell, chairman of town of Rice Lake:

There is no reason why pine will not grow if fires are prevented.

E. A. Trenholm, of Town 57, Range 16:

Prospect is good if fire is kept out.

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Question 12. Suppose a farmer has ten acres of white pine, whether in one or several patches, standing sufficiently thick, on soil that is unfit for agriculture or for permanent pasture,—in what amount would such body of pine, when ten years old, increase the value of his farm? And please explain the way you arrive at your conclusion.

[NOTE.—The yield tables of Saxony, Germany, show that an acre in fourth-rate locality, fully stocked with Scotch Pine, at the age of ten years contains 2,600 feet, board measure (though of course not merchantable timber); at the age of twenty years, 6,300 feet; at the age of thirty years, 11,100 feet; at the age of forty years, 16,100 feet; at the age of fifty years, 21,400 feet. We thus see that ten acres of such pine on fourth-rate soil would at the age of fifty years contain 214,000 feet. In locality of first quality, a ten-acre tract of such pine at fifty years of age contains 580,000 feet.]

## BECKER COUNTY.

Knud O. Benson, of Lake Eunice:

On a 160-acre farm in this town at least 25 per cent.

## BELTRAMI COUNTY.

Peter Felt, of Town 145, Range 36:

I think most of the farmers would be glad if they had two acres of white pine. I for one would not sell my place for any money. I have a white pine close to the house that is two feet in diameter and about 100 feet high, and it is a daisy.

## BENTON COUNTY.

M. J. Lynch, of Glendorado:

On land only fit for timber the value of the farms would be increased one-fifth.

W. J. S. Stuart, of Granite Ledge:

Probably \$200. I would draw this conclusion from the fact that he would have timber for building purposes on his own land in after years.

## COOK COUNTY.

Chester S. Durfee, of Towns 61 and 62, Range 2 east:

Assuming that the white pine was growing like the Scotch pine, one acre in ten years would give 2,600 feet, then 10 acres would give 26,000 feet, which at \$2 per thousand would increase the farm \$52.

## CROW WING COUNTY.

Frank Mills, of Maple Grove:

A very small amount at the present price of pine.

## DOUGLAS COUNTY.

William Knapton, of La Grand:

In some parts of our township the increase in value would be \$15 to \$20 an acre, in other parts not so much.

## HUBBARD COUNTY.

Chris. Anderson, of Henrietta:

Probably about one-third providing they would do well, but I think there is too little clay and too much sand for white pine to do much of anything in this town.

Dewitt Clason, of Towns 142 and 143, Range 35:

It would double itself every 10 or 15 years—I mean the growth.

## KANABEC COUNTY.

John Keenan, of Comfort:

First shelter for the stock. Evergreen attracts the eye of the traveler. I would give \$500 for 10 acres of evergreen five years old if it was on my farm.

John Bengtson, of South Fork:

Such a ten-acre patch, or smaller patches, would be worth more than the timber itself is worth simply because it gives such a nice appearance around buildings. I for my part would call it worth from \$500 to \$1,000.

## MILLE LACS COUNTY.

John Dalchow, of Bogus Brook:

About \$5 an acre.

J. F. Bockoven, of Princeton:

Am satisfied that in this locality it would increase the value one-fifth.

## MORRISON COUNTY.

A. Lund, of Cushing:

About \$150, of which \$75 for timber and balance in windbreak and general improvement.

John Brown, of Parker:

I have considerable white pine on my place, but I can't see that it grows very much and I am here 18 years. There is no pine in this town now for lumber. Last summer there were parties going through the woods cutting everything that would make a tie.

E. S. Hall, chairman of town of Clough:

I think it would increase the value to the amount of \$550. I have lived in a grove of white pine for 7 years and I know they have doubled their size in that time.

#### OTTER TAIL COUNTY.

Wm. Zimmer, chairman of town of Carlisle:

Would increase the value of a farm for windbreaks.

F. C. Cole, chairman of town of Homestead:

It would increase the value of the farm more in appearance than in the value of the pine.

#### PINE COUNTY.

John E. Norstrom, chairman of town of Pokegana:

At least \$500 to \$600.

#### TODD COUNTY.

John Dussault, chairman of town of Fawn Lake:

For a farmer it would amount to nothing. I would not have it on the place.

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Question 20. Please state any other fact that you think may help the cause of forest preservation.

#### AITKIN COUNTY.

I. O. Winters, of Malmo:

I think fire wardens should be paid for looking over their towns to see if there is fire or has been. I have spent 18 days in looking over my towns for which I get nothing.

#### BECKER COUNTY.

Emanuel Berg, of Lake Park:

Require those who cut down pine to replant an equal area.

#### BELTRAMI COUNTY.

Alex. Maule, Towns 148 and 149, Ranges 31 and 32:

There are lots of meadow uncut last year, the dead grass is very heavy and if fire gets in during a dry spell and high wind it would be dangerous because there is much down balsam and poplar all through the standing timber, with other brush and leaves.

#### BENTON COUNTY.

Martin Herman, of Gilmanton:

The railroad company does not keep its right of way sufficiently clear of grass and rubbish.

W. J. S. Stuart, of Granite Ledge:

To see that the railroad strictly complies with the law. Some of the worst fires we have had were started by them.



## COOK COUNTY.

John C. Kelly, of Towns 61 and 62, Range 5 west:

I think that most fire wardens are too indifferent about enforcing that section of the law relating to the use of incombustible wads in firearms and in reporting small fires caused by them.

George Wartner, of Gunflint Lake:

The forest fires of 1893 and 1894 destroyed about one hundred million feet of good pine in Townships 64, Ranges 3 and 4; 65, Ranges 3 and 4.

## HUBBARD COUNTY.

E. R. Hinds, of Hubbard:

I think each town ought to be allowed so much for fire wardens and there would be no trouble about getting their pay, because some want big pay and some do not charge anything.

## ISANTI COUNTY.

J. H. Chapman, of Spencer Brook:

Execute the present law and encourage tree planting.

## ITASCA COUNTY.

A. A. Chase, of Deer River:

Through all classes of timber here are immense quantities of balsam, or fir, and what applies to this town applies to the whole of the organized town, only in the other parts of the organization the pine is practically all cut. One thing is morally certain, and that is, if a fire gets started in a dry time the country round about here will get a tremendous scorching and fire wardens, with all the force they can muster, will be powerless to arrest or control it.

The situation is far more critical since July 3d last when a large scope of country was visited by a high wind assuming almost the proportions of a tornado that prostrated a large quantity of timber. In places it is practically impassable for man or beast. The fires of two, three and four years previous had killed a large percentage of the timber, which made the destruction the easier and more complete.

Joseph H. Gardner, of Town 63, Range 23:

The state to help put good roads through the county so that people could travel. People would stay on the road where they could find shelter, and it would settle up the country. By making more clearings it would lessen the danger.

E. R. Lewis, of Ray:

I can only state that the Indians, many of whom do not live on their reservations, are the greatest cause of the destruction of timber both by setting fires and stripping the bark from the best cedar, birch and tamarack. It would not be so bad if they did not come over from the reservations on the Canadian side to get their canoe bark. In fact I cannot go into any grove of hifty timber but I find the best trees have been killed in this way.

## KANABEC COUNTY.

John Bengtson, of South Fork:

Most of the timber in this town is dry, and during the last year much grass has grown up and if fire comes it will be hard to prevent it and few people to fight it. Furthermore, many settlers are coming in here who have much work to do on the start and do not get time to clear around buildings as they should. In case our town becomes the victim of forest fires without doubt many settlers will be burnt out.

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DAMAGE CAUSED BY FOREST FIRES IN MINNESOTA PREVIOUS  
TO 1895.

In answer to the question, "What, for a rough estimate, do you consider the amount of damage which, previous to the year 1895, has been done in your township (if more than one township, state as to each township) by forest fires, and give some of the facts which support your conclusion?" several failed to give any estimate, but the aggregate estimates of seventy-five fire wardens amount to \$4,232,000 as the amount of damage which had been caused by forest fires previous to the year 1895.

PROGRESS OF NEW SETTLEMENTS.

The permanent location of new settlers in the forest regions increases the danger from fires. The severe business depression which has so long prevailed in the larger cities has, among other causes, sent many families out upon the public and other vacant lands where unquestionably in most cases their prosperity will be promoted. An industrious and frugal family with a snug log house, a cow, a pig, some fowls and even a small patch of ground under cultivation, if not too far from a main route of travel, can subsist and gradually improve their condition, feeling all the time the happiness of independence.

In reply to the question, "To what extent are new settlers coming into your town to locate permanently?" the answers from thirty-two towns showed an average of a little over twenty-three families, or new settlers, annually locating in each town.

## PASSABLE WAGON ROADS.

Good roads form an important break against the spread of forest fires. To obtain some idea of the situation in respect to roads the following question (No. 18) was submitted: "How many miles of passable natural or artificial wagon road are there in your town, and where situated, and about how much is expended annually for its maintenance?" Replies from 138 chairmen in organized towns and fire wardens in unorganized towns show an aggregate of 5,493 miles, or 40 miles per town, and an aggregate amount of \$64,795 annually expended for their maintenance.

## LAND ONLY FIT FOR BEARING PINE.

Replies from fire wardens in seventy-five towns reported an aggregate of 600,000 acres only fit for bearing pine. A majority reported that all the land in their towns was suitable for agriculture.

I passed over a part of the Red Lake Indian Reservation last October, via Fosston to Red Lake, returning by a route lying a little west, and was disappointed in seeing so much poor country. I passed through one fine body of primeval white pine which appeared to occupy the best soil—namely, a clayey loam,—also a few good bodies of hard wood. The surface of the country, which is moderately undulating, is mostly covered with a light growth of poplar and well watered, but as to the land generally, I would say that three-fourths of it is better suited for forest than for agriculture. There is no question that there are several million acres of waste land in Northern Minnesota that is only fit for bearing forest, and the sooner it becomes utilized for that purpose the richer will be our state.

## AMOUNT OF STANDING TIMBER IN MINNESOTA.

In my report of last year I furnished a conservative estimate of the amounts and varieties of standing timber in the state. From additional information which I have received from competent judges I am induced to raise the estimates as to white pine in three counties, namely, in Cass county



from 1,600,000,000 feet to 2,500,000,000, being an increase of 900,000,000 feet; in Cook county from 800,000,000 feet to 2,000,000,000, being an increase of 1,200,000,000 feet, and in Lake county from 1,500,000,000 to 2,000,000,000, being an increase of 500,000,000; being altogether an increase of 2,600,000,000 feet, making the sum total of standing white pine in the state 16,849,000,000 feet, and of Norway pine (the estimate of which I have not changed) 3,417,475,000 feet, making in the aggregate for both kinds 20,261,475,000 feet. With these amendments inserted I shall quote in this report here below the estimates of standing timber given in last year's report.

Mr. C. A. Smith, of the C. A. Smith Lumber Company, Minneapolis, in an interview which I had with him, recently repeated to me his confident opinion and estimate, which, by request, he gave a few months ago in Washington, that the standing white and Norway pine together in Minnesota amounts to forty billion feet. This he gives as a rough estimate. His company has expended \$75,000 in looking over the pine country, having had at one period thirty men in the field for a year and a half. His opinion is based much on the judgment of others and on the common fact that land reported cut clean afterwards is found to yield considerable timber. Mr. Smith remembers hearing leading lumbermen in 1870 express the opinion that in ten or twelve years all the pine tributary to the Mississippi river would be exhausted.

Captain J. M. Paine, of Carlton, who has had forty years' experience in lumbering in Minnesota, is of the opinion that, under present conditions, as much pine will yet be cut in this state as has already been cut. The reason he gives for this is that lumbermen now cut very clean and that about fifty per cent of what they cut is what in former years would have been rejected or left uncut.

It is altogether probable that thirty billion feet of pine has been cut in Minnesota during the past fifty years; and if an equal amount still remains then the present value of the standing pine in the state is ninety million dollars.



# THE MINNESOTA FORESTS AND AMOUNTS AND VARIETIES OF THE WOOD AND TIMBER GROWING THEREIN.

Section 3 of the Forest Preservation Act makes it the duty of the Chief Fire Warden to "investigate the extent of the forests of the state, together with the amounts and varieties of the wood and timber growing therein," and to include such information in his annual report. This is a very important and interesting work, but to do it thoroughly would require much time and means to employ competent persons to make an actual examination of the timber in the woods. Of course no such means have yet been provided and all the information that can now be furnished as to the extent of the forests and the amount and varieties of timber growing therein is a conservative estimate, based, in part, upon information received from many owners of timber land, from some examination of plats and field notes of the public surveyors, from estimates of fire wardens, from consultations and correspondence with timber land experts, and from a little personal acquaintance with the Minnesota forests gained by visits during the past forty years.

One would suppose that the "field notes" of the public surveyors would give a good clue to the amount of timber, but they do not. They are merely remarks of what the surveyor observed in hastily passing, not through, but along the four sides of each square mile of land. In some surveys these remarks have been omitted, and as very much of the surveyed land has been lumbered for many years the "field notes" form but a slight basis on which to determine the present amount of timber. \* \* \* \* \*

What is considered a rough but conservative estimate of the extent of the forests and amount of timber therein is now submitted by (timber) counties in their alphabetical order, but subject to such corrections as shall be found proper after further investigations. The estimates of wood will be on the basis, as a rule, that forests of mixed timber will average ten cords of wood per acre, in addition to the merchantable timber. All persons who discover errors in the estimates are earnestly desired to communicate corrections to this office. Doubtless it will often happen that some merchantable tamarack, spruce, and poplar will be classed as wood.

The statements of area of land are exclusive of water. In estimates of timber board measure is understood.

## AITKIN COUNTY.

The Mississippi river flows diagonally across this county, and Mille Lacs Lake forms a part of its southern boundary. It was originally covered with mixed timber. The Northern Pacific Railroad has been in operation across its central part for twenty years. Two other rail-

roads touch its northern line. The facilities for getting out the pine have been good, and nearly all of it has been removed. The most that remains is in the three or four northwestern townships and in those bordering Mille Lacs Lake. The bottom lands of the Mississippi contain elm, maple, oak, and other large-leaved timber. The supply of elm has led to the recent establishment of a stave and hoop factory at the town of Aitkin. At the present time 50,000,000 feet of pine are being cut annually in the county, of which half is cut by homestead settlers.

Land (acres).....	1,000,000
Forest (acres).....	300,000
White pine (feet).....	375,000,000
Norway (or red) pine (feet).....	75,000,000
Elm (feet).....	1,000,000
Oak, ash, birch, basswood, butternut, etc. (feet).....	3,000,500
Wood (cords).....	3,000,000

#### BECKER COUNTY.

The beautiful hardwood forest that skirts many of the lakes in this county has made them favorite summer resorts, especially for people from Fargo and other places in North Dakota, many of whom have cottages on their shores.

Land (acres).....	836,000
Forest (acres).....	240,000
White pine (feet).....	120,000,000
Norway pine (feet).....	60,000,000
Oak (feet).....	12,000,000
Ash, elm, basswood, birch, poplar, spruce, tamarack, etc. (feet).....	10,000,000
Wood (cords).....	2,000,000

#### BELTRAMI COUNTY.

This county is remarkable, both for its great extent and for containing the magnificent body of virgin pine forest, situated on the Red Lake Indian Reservation and principally south and east of the lake. Pine is found on the higher ground all the way to the northern boundary.

Land (acres).....	2,750,000
Forest (acres).....	1,650,000
White pine (feet).....	1,500,000,000
Norway pine (feet).....	350,000,000
Oak, maple, birch, spruce, poplar, tamarack, etc. (feet)	250,000,000
Wood (cords).....	16,500,000

## BENTON COUNTY.

Land (acres).....	357,000
Forest (acres).....	89,000
White pine (feet) .....	1,000,000
White and red oak (feet).....	6,000,000
Black ash (feet).....	4,000,000
Basswood (feet).....	3,000,000
Common elm (feet).....	5,000,000
Wood (cords).....	1,335,000

## CASS COUNTY.

This county contains very rich forests of pine and hardwood around Cass, Leech and Winnibigoshish lakes. The land immediately south of Leech Lake, to the width of ten miles, is a fine undulating country with good clay and loam soil covered with heavy white pine mixed with some hardwood. The Brainerd & Minnesota Northern Railroad now penetrates this country as far as Walker, situated on one of the west arms of Leech Lake, and has branches winding round to a dozen or more lumber camps. The quantity of pine now yearly taken out by this railroad runs up into the hundreds of millions of feet.

Land (acres).....	1,500,000
Forest (acres).....	600,000
White pine (feet).....	2,500,000,000
Norway pine (feet).....	400,000,000
Oak (feet).....	8,000,000
Ash, birch, basswood, elm, etc. (feet).....	25,000,000
Wood (cords).....	6,000,000

## CARLTON COUNTY.

Originally this county was probably more heavily timbered with pine than any other county in the state. Situated near Lake Superior and crossed by four railroads, the facilities for marketing the pine have been good, and it is estimated that nearly 3,000,000,000 feet have been cut. The principal amount remaining is in the eastern townships. Around Barker station is yet standing a very considerable body of pine in its primeval grandeur. There is an authentic instance in this county of an acre of white pine yielding, from actual measurement, upward of 100,000 feet, board measure. As the average value of standing pine is \$3 per 1,000 feet, such an acre of pine would be worth at least \$300.

Land (acres).....	548,000
Forest (acres).....	300,000
White pine (feet).....	550,000,000
Norway pine (feet).....	100,000,000
Oak (feet).....	15,000,000

Cedar (feet).....	10,000,000
Yellow birch (feet).....	10,000,000
Maple, basswood, spruce, poplar, etc. (feet).....	10,000,000
White ash (feet).....	100,000
Wood (cords).....	3,000,000

## COOK COUNTY.

Land (acres).....	900,000
Forest (acres).....	600,000
White pine (feet).....	2,000,000,000
Norway pine (feet).....	150,000,000
Cedar (feet).....	200,000,000
Spruce (feet).....	200,000,000
Birch, oak, maple, poplar, etc. (feet).....	100,000,000
Wood (cords).....	9,000,000

## CROW WING COUNTY.

Land (acres).....	527,000
Forest (acres).....	140,000
White pine (feet).....	25,000,000
Norway pine (feet).....	5,000,000
Gray or jack pine (feet).....	10,000,000
White and red oak (feet).....	4,000,000
Ash, birch, maple, etc. (feet).....	2,000,000
Wood (cords).....	1,400,000

## DOUGLAS COUNTY.

Land (acres).....	400,000
Forest (acres).....	85,000
White and red oak (feet).....	10,000,000
Ash, maple, elm, basswood, spruce, etc. (feet).....	10,000,000
Wood (cords).....	4,000,000

## HUBBARD COUNTY.

Land (acres).....	550,000
Forest (acres).....	330,000
White pine (feet).....	450,000,000
Norway pine (feet).....	300,000,000
Gray or jack pine (feet).....	50,000,000
Oak (feet).....	3,000,000
Birch (feet).....	10,000,000
Spruce, poplar, etc. (feet).....	10,000,000
Wood (cords).....	3,300,000

## ISANTI COUNTY.

Land (acres).....	266,000
Forest (acres).....	50,000
White pine (feet).....	200,000
White and red oak (feet).....	2,000,000
White and black ash (feet).....	1,000,000
Maple, basswood, etc. (feet).....	1,000,000
Wood (cords).....	500,000



## ITASCA COUNTY.

This county, although not all surveyed, contains about 170 full congressional townships, and when settled will form an important part of the state. Reports from the fire wardens representing twenty-six congressional townships in this county show, according to their estimates, an aggregate amount of 417,000,000 feet of white pine and 358,000,000 feet of Norway pine, or together 775,000,000 feet, which will average about 30,000,000 feet per township. Assuming that all the townships in the county will average an equal amount, which is hardly probable, it would show that the total amount in the county is 5,000,000,000 feet. A safer estimate would probably be about half of that. Two important rivers, the Big Fork and the Little Fork, flow north through this county, and it is an interesting fact that the Little Fork is the larger of the two. With reference to the timber in the country watered by these streams, Mr. Horace V. Winchell, in his report of geological observations, made in the summer of 1887, says: "A large area of the land traversed by the Big Fork and Little Fork rivers is within the limits of the glacial lake, Agassiz. This region is now covered with a fine growth of timber, both hard and soft wood, and is excellent farming land. It is slightly rolling, or else flat, and well watered by these large rivers and their numerous tributaries. Much of the pine that stood within a few years along these streams has been stolen and floated down to Lake of the Woods. This unlawful destruction of some of the finest of our Minnesota pine seems to be carried on every winter, as many of the logs, freshly cut, still lie around."

Also, the report of 1895, on the Rainy Lake gold region, by Messrs. H. V. Winchell and U. S. Grant, of the Minnesota Geological and Natural History Survey, states, and the remarks apply in part to St. Louis county:

"The usual white and Norway pines are found throughout this entire region, but not always of sufficient size to pay for cutting. Yet there are many places along the shores of Rainy Lake and the adjoining bodies of water where there are groves of good-sized pines; and many scattered areas of timber exist in the vicinity of the Big Fork and Little Fork rivers. Some of the pine has already been cut and taken to Rat Portage, but much remains to be cut as soon as the demand for lumber in this district increases. A saw mill was in operation near Rainy Lake City during the last summer and two or three others on Rainy river.

"In hardwood timber the white birch, which occurs throughout the region, and which often reaches a size suitable for lumber, may be mentioned; oak and elm of good size occur in the flat, clayey district just to the west of Rainy Lake.

"The numerous swampy tracts of this part of the state are often covered by a dense growth of excellent spruce timber. This is used in large amounts in the manufacture of pulp and paper, and as the more southern regions are being rapidly devastated of their timber, the spruce of Northern Minnesota will soon become exceedingly valuable. Growing, as it does, in the lower and damper grounds, it is not so subject to destruction by forest fires as the pine."

Land (acres).....	3,600,000
Forest (acres).....	2,000,000
White pine (feet).....	2,200,000,000
Norway pine (feet).....	550,000,000
Gray or jack pine (feet).....	30,000,000
Cedar (feet).....	100,000,000
Spruce (feet).....	100,000,000
Tamarack (feet).....	50,000,000
Birch (feet).....	100,000,000
Oak (feet).....	50,000,000
Basswood, maple, elm, ash, poplar, etc. (feet).....	100,000,000
Wood (cords).....	36,000,000

## KANABEC COUNTY.

Land (acres).....	337,000
Forest (acres).....	200,000
White pine (feet).....	150,000,000
Oak (feet).....	50,000,000
Birch (feet).....	5,000,000
Poplar (feet).....	40,000,000
Ash, maple, basswood, elm, etc. (feet).....	10,000,000
Wood (cords).....	4,000,000

## LAKE COUNTY.

Land (acres).....	1,328,000
Forest (acres).....	900,000
White pine (feet).....	2,000,000,000
Norway pine (feet).....	200,000,000
Gray pine (feet).....	50,000,000
Cedar (feet).....	400,000,000
Yellow birch (feet).....	150,000,000
Maple (feet).....	50,000,000
Spruce (feet).....	200,000,000
Tamarack, poplar, etc. (feet).....	150,000,000
Wood (cords).....	9,000,000

## MILLE LACS COUNTY.

Lumbering has been carried on in this and in the county of Kanabec for forty years, and over a billion feet of excellent white pine has been taken out of each county. A heavy and splendid forest of origi-

nal growth of white pine on undulating surface now covers the south shore of Mille Lacs lake, but is being rapidly cut.

Land (acres).....	365,000
Forest (acres).....	260,000
White pine (feet).....	500,000,000
Norway pine (feet).....	40,000,000
White oak (feet).....	30,000,000
Red oak (feet).....	30,000,000
White ash (feet).....	10,000,000
Black ash (feet).....	10,000,000
Birch, elm, basswood, maple, tamarack, poplar, etc. (feet)	30,000,000
Wood (cords).....	3,000,000

#### MORRISON COUNTY.

There was pine lumbering on Platte river in this county upward of forty years ago, and has been carried on continuously ever since, but the supply of pine is about exhausted.

Land (acres).....	693,000
Forest (acres).....	300,000
White pine (feet).....	18,000,000
Norway pine (feet).....	7,000,000
Oak (feet).....	30,000,000
Birch (feet).....	6,000,000
Poplar (feet).....	20,000,000
Ash (feet).....	3,000,000
Basswood, elm, maple, poplar, etc. (feet).....	25,000,000
Wood (cords).....	3,000,000

#### OTTER TAIL COUNTY.

Land (acres).....	1,270,000
Forest (acres).....	300,000
White pine (feet).....	2,000,000
Norway pine (feet).....	400,000
Oak (feet).....	50,000,000
Ash (feet).....	25,000,000
Birch (feet).....	10,000,000
Maple, elm, basswood, spruce, poplar, etc. (feet).....	40,000,000
Wood (cords).....	3,000,000

#### PINE COUNTY.

Land (acres).....	900,000
Forest (acres).....	300,000
White pine (feet).....	800,000,000
Norway pine (feet).....	300,000,000
Oak (feet).....	100,000,000
Ash (feet).....	40,000,000
Basswood (feet).....	50,000,000
Birch, maple, elm, poplar, tamarack, etc. (feet).....	60,000,000
Wood (cords).....	3,000,000

## ROSEAU COUNTY.

Land (acres).....	865,000
Forest (acres).....	260,000
White pine (feet).....	450,000,000
Norway pine (feet).....	150,000,000
Spruce (feet).....	100,000,000
Oak (feet).....	50,000,000
Ash, basswood, birch, maple, tamarack, etc. (feet).....	50,000,000
Wood (cords).....	2,600,000

## ST. LOUIS COUNTY.

This county has an extent of 100 miles north and south by sixty miles east and west, and is a little empire in itself. It is natural forest, also contains the principal iron mines in Minnesota that have as yet been developed, and in the midst of which several large villages have grown up. Finely watered, with fertile soil and favorable surface this superb county is destined to have a large population. There are about 200 congressional townships in its limits. Of these, a very few have not been surveyed. There are but a very few, if any, townships which do not contain some pine timber. The "field notes" of the public surveyors in different years back show that as many as thirty-one townships had suffered seriously from forest fires. In some instances whole townships had been devastated of their splendid pine, and in its place was springing up thick growths of poplar. The county is traversed by four railroads. A great deal of pine has been cut and shipped from the lake ports. Reports of fire wardens, for the most part acquainted with timber, representing thirty congressional townships, show an aggregate in these towns of 620,000,000 feet of white pine and 270,000,000 feet of Norway pine, or, together, 890,000,000 feet. Assuming that each of the towns would average 30,000,000 feet, the total amount for the whole county, including white and Norway pine, would be 6,000,000,000 feet. But this would hardly be a conservative estimate. It is true there are some remote unsettled townships that are heavily timbered with pine. So, there are some which are principally covered with jack (gray) pine (which, however, is used for shingles and fuel) and some almost wholly swamp. It would not be surprising if a thorough examination would show fully 5,000,000,000 feet of standing pine in the county, but in the absence of accurate information the only safe way is to make a smaller estimate. The pine is found generally mixed with other varieties of timber.

The estimate of forest area, as in the foregoing estimates, is intended to include only actual forest and to exclude brush land and tamarack swamps.



Land (acres).....	2,091,000
Forest (acres).....	1,500,000
White pine (feet).....	3,200,000,000
Norway pine (feet) .....	700,000,000
Gray pine (feet) .....	400,000,000
Spruce (feet).....	450,000,000
Cedar (feet).....	300,000,000
Birch (feet).....	400,000,000
Ash (feet).....	200,000,000
Oak (feet) .....	400,000,000
Basswood (feet). ....	400,000,000
Elm (feet).....	200,000,000
Maple (feet).....	100,000,000
Poplar (feet) .....	400,000,000
Tamarack (feet).....	400,000,000
Wood (cords).....	15,000,000

## STEARNS COUNTY.

This county, though prairie in the western part, formerly contained a large continuous forest of hardwood, interspersed with beautiful lakes, but began to be settled up as early as 1856. Several mills for the consumption of hardwood timber have been in operation for many years. It is a peculiar fact that a cluster of original white pines is standing in the city of St. Cloud; and from thence north on the west bank of the Mississippi will be found occasional pines, as if thrown out as pickets from the great pine forest.

Land (acres).....	800,000
Forest (acres).....	85,000
Oak (feet).....	5,000,000
Basswood (feet).....	8,000,000
Ash (feet).....	3,000,000
Maple (feet) .....	3,000,000
Birch, butternut, elm, poplar, etc. (feet).....	5,000,000
Wood (cords).....	850,000

## TODD COUNTY.

This, though largely a forest county, has been settled for many years. A recent letter from the auditor of the county states: "The quantity of oak and other timber suitable for railroad ties is being diminished at a very rapid rate, and small portable saw mills are using up nearly every kind of timber growing in this region." The same remark will apply to several other counties.

Land (acres).....	618,000
Forest (acres).....	300,000
White pine (feet) .....	2,000,000
Norway pine (feet) ...	75,000
Oak (feet).....	25,000,000

Ash (feet).....	20,000,000
Maple (feet).....	15,000,000
Elm (feet).....	10,000,000
Basswood (feet) .....	30,000,000
Birch (feet) .....	10,000,000
Poplar, tamarack, etc. (feet).....	20,000,000
Wood (cords).....	3,000,000

## WADENA COUNTY.

Land (acres).....	452,000
Forest (acres).....	100,000
White pine (feet).....	6,000,000
Norway pine (feet).....	30,000,000
Gray or jack pine (feet).....	100,000,000
Oak (feet) .....	20,000,000
Ash (feet).....	10,000,000
Birch (feet) .....	5,000,000
Maple (feet).....	10,000,000
Poplar (feet).....	15,000,000
Wood (cords).....	1,000,000

## SUMMARY.

The estimates for the foregoing twenty-three forest counties foot up as follows:

Land (acres).....	22,855,000
Forest (acres).....	10,889,000
White pine (feet).....	16,849,000,000
Norway (or red) pine (feet).....	3,417,475,000
Gray (or jack) pine (feet).....	640,000,000
Ash (feet).....	126,100,000
Basswood (feet).....	491,000,000
Birch (feet) .....	706,000,000
Cedar (feet).....	1,010,500,000
Elm (feet).....	216,000,000
Maple (feet).....	178,000,000
Oak (feet) .....	700,000,000
Poplar (feet) .....	475,000,000
Spruce (feet).....	1,050,000,000
Tamarack (feet).....	450,000,000
Ash, basswood, butternut, birch, elm, maple, poplar, spruce, tamarack, etc., not included in separate esti- mates (feet).....	911,500,000
Wood (cords).....	97,480,000

The estimates of the auditors of twenty-nine other counties, which contain more or less hardwood forest, show an aggregate area of 656,000 acres of natural forest, containing 6,000,000 cords of wood; also 45,000 acres of artificial forest, containing 67,000 cords of wood. Twenty-seven other counties, of which some are the oldest settled and some are

mostly prairie, may be estimated as aggregating 345,000 acres of natural forest, with 3,450,000 cords of wood; also, aggregating 15,000 acres of artificial forest. The total area of natural forest in the state, according to the foregoing figures, and not including mere brush and swamp land, is 11,890,000 acres.

It is estimated that the natural growth of timber, in rather thick and high forest, averages about one-third of a cord per acre, being, for that portion that could be regarded as merchantable timber, equivalent to about 400 feet, board measure, per acre. From this it can be seen what Nature tries to do, and if the forests were protected, would do, to repair the waste and consumption by man.

#### THE LOGGING INDUSTRY.—OPINIONS OF LUMBERMEN.

The following answers, lately received from prominent lumbermen, are not only suggestive of the industrial importance to our state of the logging business,—furnishing as it does wages to thousands of workingmen in the winter months,—but also present interesting views in regard to the regrowth of white pine.

The Shevlin Lumber Company of Minneapolis have known the same pine land to be cut over three times, which undoubtedly agrees with the experience of most lumbermen in the St. Croix and Rum River valleys. Considerable pine land has been cut over more than three times.

Mr. Edwin St. John, of Stillwater, states: "I have cut over the same land from three to six times in fifteen years' time." On the other hand, Mr. Frey, of the Nelson-Tenney Lumber Company of Minneapolis, states: "When land was cut clean the first time I have never known of any pine growing on it afterwards."

Mr. St. John thinks it would be a good idea to burn up the tree tops; and several others appear to agree with him. All are very emphatic as to the importance of preventing forest fires. Mr. Merrill, of Merrill & Ring, Duluth, thinks the present fire protection inadequate. Perhaps it is, but who is there yet willing to incur the expense of a better system?

With regard to the burning of slashings (tops and branches of pines) I lately passed over a section of land on the Black Hoof river in Carlton county where an uncommonly heavy body of primeval white pine was cut clean the past winter by Messrs. Mitchell and McClure. The black and charred appearance of the huge stumps and even of the ground itself showed there had been recent fire; and Mr. John McNulta, foreman of the camp, informed me that the slashings were consumed by fire in April last while they were still logging and while a plenty of men were present to assist in controlling the fire. The fires were set, he said, at different times when the wind and weather were favorable, and he thought the whole expense of burning the slashings did not exceed ten cents per acre, which certainly is very much less than many lumbermen have claimed as the supposed cost of such work.

The question as to the policy of burning the slashings seems to be an open one. There were no trees left on this cut-over ground for future seeding, and Mr. H. B. Ayers, who accompanied me on the trip, expressed doubt whether young pine would ever again appear on the land. Mr. McNulta, however, from his experience in similar cases in Michigan, was of the opinion that it would. If lumbermen, fire wardens or any persons who are interested in forestry will watch such land we will in a few years have more information on the subject.



## STATEMENT OF MERRILL &amp; RING.

1. How many years have you been engaged in the logging business in Minnesota?

Answer. Five years.

2. In what county or counties do you operate? and are you cutting on your own land, or as a contractor on land of others?

Answer. In St. Louis the present winter.

3. Average number of hands usually employed by you in a season, in camps, under your exclusive control?

Answer.....

4. Average wages paid per month including board?

Answer. Twenty-five to thirty dollars.

5. Usual length of the season they are so employed?

Answer. Six months.

6. Number of draft animals used?

Answer.....

7. Average annual amount expended by you for supplies, being products of agriculture, including live stock?

Answer.....

8. If there is improvement in the method of logging over what was the practice twenty-five or thirty years ago, please explain wherein?

Answer.....

9. Please explain the leading features of the business as now conducted?

Answer.....

10. What are the principal drawbacks and risks in the business and how, if in any way, can they be remedied?

Answer.....

11. How many times have you known the same pine land to be cut over and at what number of years interval?

Answer. Have never known of new growth of pine being cut in the Northwestern states.

12. How do you account for pine not growing on land that has been cleared of pine?

Answer. Want of systematic adequate fire protection, lack of organization for the purpose, and an entire misconception by the public and all concerned of the object to be attained.

13. What, if any, economical way is there for maintaining the re-growth of white pine and preserving a permanent supply?

Answer. This information may be best obtained by observa-tion and imitation of methods pursued by other countries experienced in forest culture.

14. How long will the supply of white pine last if lumbering con-tinues as at present?

Answer.....

15. On what kind of soil and surface have you found the best white pine?

Answer.....

16. About how many pine trees in a hundred do you find to be worthless from being over-ripe or too old?

Answer.....

17. About how many pine trees do you find to be worthless from other, and what, causes?

Answer.....

18. Can you recommend any practical way for preventing such loss of trees?

Answer.....

19. What are the dangers and injuries that pine forests are most liable to; and please state fully the best means for their prevention?

Answer.....

20. To what extent have the pine forests been injured by fires in years past and how have such fires originated, so far as you know and believe?

Answer.. ..

21. If you consider it practicable to burn the tree branches and tops left in lumbering, what is the best method of doing so?

Answer. This is likely to meet with opposition by owners on account of expense which, having never been contemplated, would be seriously felt by operators whose profits are already small. If undertaken it should be under the supervision of the state and partly at its expense. It no doubt would be a great benefit and save a large amount of timber.

22. State any other facts that you think may be useful?

Answer.....

[Signature] C. L. RING, Trustee,  
per M. D. MERRILL.

[Place and date] Duluth, March 22, 1897.

## STATEMENT OF EDWIN ST. JOHN.

1. How many years have you been engaged in the logging business in Minnesota?

Answer. Twenty-two years.

2. In what county or counties do you operate? and are you cutting on your own land, or as a contractor on land of others?

Answer. Kanabec county and Pine county, Minn. On  $\frac{1}{2}$  of my own lands, balance on contract lands.

3. Average number of hands usually employed by you in a season, in camps, under your exclusive control?

Answer. Three hundred men.

4. Average wages paid per month including board?

Answer. Twenty-six dollars per month.

5. Usual length of the season they are so employed?

Answer. Six months.

6. Number of draft animals used.

Answer. One hundred and twenty head.

7. Average annual amount expended by you for supplies, being products of agriculture, including live stock?

Answer. Twelve thousand five hundred dollars.

8. If there is improvement in the method of logging over what was the practice twenty-five or thirty years ago, please explain wherein?

Answer. In making good logging roads, sawing down trees, rockers on both sleds, water tanks, rut cutters, snowplow, stove in water tank.

9. Please explain the leading features of the business as now conducted?

Answer. Making good logging roads and skid your logs well.

10. What are the principal drawbacks and risks in the business and how, if in any way, can they be remedied?

Answer. Snow coming early in the fall which prevents the ground from freezing, and when this happens snowplow the logging roads, cut very wide, say twenty feet on each side of the logging road, wider than the road is.

11. How many times have you known the same pine land to be cut over and at what number of years interval?

Answer. I have cut over the same land from three to six times in fifteen years' time.

12. How do you account for pine not growing on land that has been cleared of pine?

Answer. I have always seen pine growing on lands that I have cut over.

13. What, if any, economical way is there for maintaining the re-growth of white pine and preserving a permanent supply?

Answer. Keep fires out.

14. How long will the supply of white pine last if lumbering continues as at present?

Answer. Five years on St. Croix and its tributaries.

15. On what kind of soil and surface have you found the best white pine?

Answer. Black loam and clay.

16. About how many pine trees in a hundred do you find to be worthless from being over-ripe or too old?

Answer. Five trees.

17. About how many pine trees do you find to be worthless from other and what causes?

Answer. Five. Dying roots being disturbed and fire killing the roots and woodpecker gets to pecking them.

18. Can you recommend any practical way for preventing such loss of trees?

Answer. Keep fires from being started in the timber.

19. What are the dangers and injuries that pine forests are most liable to; and please state fully the best means for their prevention?

Answer. Fires.

20. To what extent have the pine forests been injured by fires in years past and how have such fires originated, as far as you know and believe?

Answer. Ten to twenty per cent. By men exploring and careless in leaving a campfire, and I think there has been lots of fires started on purpose to burn up limbs.

21. If you consider it practicable to burn the tree branches and tops left in lumbering, what is the best method of doing so?

Answer. I never have burnt the tree tops, but I think it a good idea to burn up the tree tops.

22. State any other facts that you think may be useful?

Answer. Appoint more deputies and enforce the laws, and make an example of a few that set out fires and some that do it for a business.

[Signature.] EDWIN ST. JOHN.

[Place and date.] Stillwater, Minn., March 24, 1897.



## STATEMENT OF THE SHEVLIN-CARPENTER LUMBER COMPANY.

1. How many years have you been engaged in the logging business in Minnesota?

Answer. Twenty years.

2. In what county or counties do you operate? and are you cutting on your own land, or as a contractor on land of others?

Answer. Itasca, St. Louis, Cass. Our own.

3. Average number of hands usually employed by you in a season in camps, under your exclusive control?

Answer. Fifty.

4. Average wages paid per month including board?

Answer. Eighteen dollars.

5. Usual length of the season they are so employed?

Answer. Four months.

6. Number of draft animals used?

Answer. Thirty-two.

7. Average annual amount expended by you for supplies, being products of agriculture, including live stock?

Answer. Three thousand dollars.

8. If there is improvement in the method of logging over what was the practice twenty-five or thirty years ago, please explain wherein?

Answer. In every way. Make better roads, use better horses, more systematic.

9. Please explain the leading features of the business as now conducted?

Answer. To get the logs to mills as cheaply as possible.

10. What are the principal drawbacks and risks in the business and how, if in any way, can they be remedied?

Answer. Too much snow or rain.

11. How many times have you known the same pine land to be cut over and at what number of years interval?

Answer. Three times.

12. How do you account for pine not growing on land that has been cleared of pine?

Answer. A mat of pine needles form and prevent seed from taking root.

13. What, if any, economical way is there for maintaining the re-growth of white pine and preserving a permanent supply?

Answer. Don't know.

14. How long will the supply of white pine last if lumbering continues as at present?

Answer. Twenty-five years.

15. On what kind of soil and surface have you found the best white pine?

Answer. Sandy.

16. About how many pine trees in a hundred do you find to be worthless from being over-ripe or too old?

Answer. Impossible to answer.

17. About how many pine trees do you find to be worthless from other, and what, causes?

Answer. Impossible to answer.

18. Can you recommend any practical way for preventing such loss of trees?

Answer. No.

19. What are the dangers and injuries that pine forests are most liable to; and please state fully the best means for their prevention?

Answer. Fire.

20. To what extent have the pine forests been injured by fires in years past and how have such fires originated, so far as you know and believe?

Answer. Twenty per cent.

21. If you consider it practicable to burn the tree branches and tops left in lumbering, what is the best method of doing so?

Answer. No.

22. State any other facts that you think may be useful?

Answer .....

[Signature]

SHEVLIN CARPENTER CO.

[Place and date] Minneapolis, April 17, 1897.

#### STATEMENT OF THE NELSON-TENNEY LUMBER COMPANY.

1. How many years have you been engaged in the logging business in Minnesota?

Answer. Twenty-seven years.

2. In what county or counties do you operate? and are you cutting on your own land, or as a contractor on land of others?

Answer. Cass, Crow Wing and Itasca, both our land and contract.

3. Average number of hands usually employed by you in a season, in camps, under your exclusive control?

Answer. Three hundred some seasons and 500 some seasons.

4. Average wages paid per month including board?

Answer. Twenty-six dollars last two seasons; about \$22-\$35 twenty years ago.

5. Usual length of the season they are so employed?

Answer. About 8 months.

6. Number of draft animals used?

Answer. Fifty to 175.

7. Average annual amount expended by you for supplies, being products of agriculture, including live stock?

Answer. About \$25,000.

8. If there is improvement in the method of logging over what was the practice twenty-five or thirty years ago, please explain wherein.

Answer. Improved tools of all kinds, better camps, better stables, better sleds, better roads, better equipments of all kinds, horse teams instead of oxen, and railroads do hauling in some localities.

9. Please explain the leading features of the business as now conducted?

Answer. Roads well graded and kept well sprinkled with water so that they are always a smooth, solid sheet of ice. Horse teams to haul on road instead of oxen and a good snowplow to clean the snow out after a storm so that the teams can do the same amount each and every day.

10. What are the principal drawbacks and risks in the business and how, if in any way, can they be remedied?

Answer. Open winters with frequent warm and thawing spells of weather, or a winter with very deep snow 4 feet or more. I do not know of any remedy for this kind of weather.

11. How many times have you known the same pine land to be cut over and at what number of years interval?

Answer. When land was cut clean the first time I have never known of any pine growing on it afterwards.

12. How do you account for pine not growing on land that has been cleared of pine?

Answer. It seems to be natural for it to grow up with hardwood brush. I have never known white pine to come up from the seed on any land that was cleared by the axe or by fire.

13. What, if any, economical way is there for maintaining the re-growth of white pine and preserving a permanent supply?

Answer.....

14. How long will the supply of white pine last if lumbering continues as at present?

Answer. I think 30 years.

15. On what kind of soil and surface have you found the best white pine?

Answer. Level or a little rolling clay subsoil.

16. About how many pine trees in a hundred do you find to be worthless from being over-ripe or too old?

Answer. Not any.

17. About how many pine trees do you find to be worthless from other, and what, causes?

Answer. Fires destroy the most. A great many trees become worthless by the lower limbs dying and breaking off, letting water in at the knot-hole causing the tree to decay.

18. Can you recommend any practical way of preventing such loss of trees?

Answer.....

19. What are the dangers and injuries that pine forests are most liable to, and please state fully the best means for their prevention?

Answer. Fire and wind. Cannot prevent wind. Have the fire wardens enforce the law in full and we will soon have less forest fires.

20. To what extent have the pine forests been injured by fires in years past and how have such fires originated so far as you know and believe?

Answer. Twenty-five per cent. Some by Indians but more by careless white men living, traveling and operating in the country starting a fire to clear land or to camp by and paying no attention to it and letting it run at will.

21. If you consider it practicable to burn the tree branches and tops left in lumbering, what is the best method of doing so?

Answer. I think that it would be better not to burn them, but if it is done have a strip around the out-edge of the place to be burnt cleared up, brush piled back, then watch the fire until piece is burned over and not let fire get away.

22. State any other facts that you think may be useful?

Answer. People are very careless about setting fires and need watching, especially in spring and fall. A few arrests would have a good effect.

[Signature] NELSON-TENNEY LUMBER CO.

By H. B. FREY.

[Place and date] Minneapolis, May 24, 1897.



## FORESTRY IN OTHER COUNTRIES.

The more the people of this state become informed in regard to forestry, and especially when they see how much it has contributed to the wealth and prosperity of the countries which have practiced it, the easier and cheaper it will be to enforce our forest preservation law. When our people come to know that there are countries in which the forests continuously yield a net annual income of from three to four dollars an acre their interest in the subject will be much quickened and they will lend their influence to uphold and enforce our forest preservation act. It was to give them an idea of the benefits and profits of forestry that I have procured from the best sources the following new and fresh accounts of forest administration in several European countries.

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DUCHY OF BADEN.

## STATE FORESTS.

The aggregate extent of the state forests of Baden is 240,304 acres, located in the Black Forest and the upper valley of the Rhine. The prevailing kind of trees is coniferous. The beech, however, covers the largest surface; next follows the fir, then the silver fir and the Scotch fir. The average estimated value per acre, taking the average of the ten years 1886-1895, is \$98.55. The annual aggregate expense of administration is \$568,078. The annual aggregate revenue amounts to \$1,235,332, and the net revenue is \$667,244. Number of acres annually sown to forest is 222, and the number of acres planted is 823. Reforesting is effected by seed from standing trees; also by planting trees, in some rare cases by artificial sowing, the latter in the case of firs. There is a gradual increase of crop. The usual method of cutting the crop consists in cutting the mature trees and covers at periods, as a rule, from thirty to forty years, with longer or shorter intervals.

Cutting in blocks clean (pines and Scotch firs) in exposed stormy situations is less frequent. According to paragraph 29 of the Forest Law of Baden of the year 1879, no part of any forest is allowed to be kept uncultivated. The number of forest fires during the years 1879-1888 was 61, the damaged surface 99 acres, and the damages amounted to \$2,225. The principal causes of such fires are negligence, when burning down the skirts of the forest, or by throwing away matches or stubs of cigars. Very few cases of fires are caused by railway locomotives.

The forest service ranks equally with other branches of the public service, and is comprised in Class D of the tariff of salaries. Seven members of the Administration of Domains (which forms a part of the Treasury Department) are the highest forest officers; they bear the title of Councillors of the Forest Board, and have a salary not exceeding \$1,380 and \$147 compensation for rent.

Besides the state forest there are community and corporation forests, covering a total surface of 555,069 acres, which are managed on the same principles as the state forests.

#### PRIVATE FORESTS.

The aggregate extent of the private forests is 451,670 acres. About one-third of all private forests is managed on forestry principles, including the forests of the Public Administration of Street, River and Railway Construction, and the most extensive and important private proprietors. The total forest product of the country increases gradually.

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### BAVARIA.

#### STATE FORESTS.

Bavaria, whose attractive capital, Munich, is frequented by so many Americans, has 6,000,000 inhabitants. Its forests comprise 2,150,000 acres, of which 34.08 per cent are the property of the state. Large forests are to be found in all parts of the kingdom; but as a general rule the mountain-

ous districts in the south (Alps); the north (Spessart) and northeast (Bohemian Forest) are covered with the densest forest. Of the whole area of the country 33 per cent is covered with forest. The prevailing kind of trees, or 77 per cent, are coniferous. The remainder comprise various kinds of deciduous trees—those losing their foliage in winter. Among the conifers red and white pine are most frequent. Among the deciduous trees the beech occupies the greatest space. The oak is also cultivated quite extensively for tanning purposes. The average estimated value of the forest land is \$50 per acre. The annual aggregate expense of administering the forests (1891) including salaries of officials, wages of workmen, local taxation, new purchases, etc., amounts to \$4,965,204. The total revenue from the forests the same year amounted to \$8,187,349. Number of acres sown or planted to forests in 1892 was 14,800, more than three-fourths of which area was planted with coniferous trees. In the case of the red pine and the white pine, reforestation is mainly done in the natural way. In the case of the fir (*Pinus sylvestris*) it is always effected artificially; in the case of the beech, always in a natural way (seed from standing trees); in the case of the oak, generally by artificial sowing. There is a continuity of forest products and a steady increase of the revenue which the state derives from its forests. This is due, first to an increase of prices, secondly to an increase of the yearly crop. The latter must chiefly be regarded as a result of the present condition of the forests which are being and have been steadily improved; also of the economy which was practiced in former times. Where reforestation is effected by seeding from the standing trees, the crop is generally cut in lengthy strips, usually not exceeding about thirty yards in width. As a general rule the administration of the state forest makes it a principle to avoid cutting in large blocks clean. In regard to compulsory tree planting, it may be said that every forest area, the trees of which have been cut, no matter whether

state or private property, must be reforested in a short time, unless evidence can be furnished that the land would be better adapted to agricultural purposes.

The damage caused by forest fires is quite insignificant, being in 1890 only \$974, in 1894 only \$1,686. The principal cause of such fires is the carelessness of the workmen employed in the forests and of individuals and parties making excursions, particularly on Sundays. There are no data at hand as to the number of such fires caused by railroad locomotives, and although some fires are no doubt so caused, the number is certainly very small.

The administration of the Bavarian state forests constitutes one of the departments of the ministry of finance. It is directly subordinate and responsible to the latter, no other authorities intervening. The highest forest official who may be regarded as being at the head of the forest administration, responsible, of course, as stated, to the minister of finance, bears the title "Ministerialrath,"—ministerial or cabinet councillor. The chief director of the Bavarian administration of state forests is "Ministerialrath" Ganghofer. His starting salary is 7,740 marks. After a sixteen years' service the salary advances to 8,820 marks. Next in rank are the so-called "Oberforstrathe," with a starting salary of 6,660 marks, which, after a sixteen-years' service, is increased to 7,740 marks.

There is no regular report published on the administration of the forests; however, the reports of the Royal Bavarian Bureau of Statistics, which are published four times a year and the "Statistische Jahrbuch für das Königreich Bayern," which is issued annually since 1894, contains some data referring to Bavarian forestry. In addition budget reports on the administration of the state forests are submitted to the "Landtag" or Diet every second year.

#### PRIVATE FORESTS.

The aggregate extent of private forests was 3,149,400 acres in 1893. In addition to the state and private forests



there are about 800,000 acres of forests belonging to separate towns and villages. The forests which are owned by great landholders are managed on forestry principles. These forests however, only comprise a very limited area, somewhat less than 400,000 acres. Most of the private forests are the property of small landholders. The average value per acre of private forests is somewhat less than that of the state forests. The net income rate varies widely. The data at hand are too few and too unreliable to admit of arriving at any conclusion with regard to the average. Opinions vary as to whether the total forest product of the country increases or decreases. In general the extent of the private forests seems to be somewhat decreasing. This would of course also appear to entail a decrease of the total forest product. Forest lands are only allowed to be changed into agricultural lands when proof can be furnished that the agricultural crop may be expected to exceed in value the forest crop. Between 1886 and 1891 from 7,000 to 8,000 acres of private forests were newly planted or sown.

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## NORWAY.

### STATE FORESTS.

It is only but recently that Norway has manifested an interest in forestry, but as so many of the people of this state are natives of that country, it was thought expedient to show what is now being done there.

The extent of the state and semi-public forests of Norway is 2,587,500 acres. Of these 837,500 acres are located in the provinces of Tromsø and Finmark; 140,000 in that of Norrland; 285,000 in North Drontheim and 225,000 acres in South Drontheim and Romsdal, and about 397,500 acres in Hedemarken. The prevailing kind of trees are fir (*Pinus sylvestris* L.), pine (*Abies excelsa* D. C.), and two species of birch. The average estimated value of the forest land is \$2.70 an acre. The annual aggregate expense of administration is about

\$108,000, and the annual aggregate revenue varies from \$60,000 to 67,500. The number of acres annually sown or planted to forest varies from 150 to 175 acres. Reforesting is almost entirely effected by natural seeding from standing trees, and, when artificial culture is employed, by planting trees. The crop of forest production is periodical, and depends partly on the market prices of lumber. The forest administration tries to prevent the yearly average yield exceeding the net increase of the forest. Cutting must in part depend on the demand. Where it does not pay to cut smaller trees, the mature ones are principally cut, while at the same time, as far as possible, diseased and injured trees, as well as such as would hinder in the growth, are removed. Where, on the other hand, trees of smaller size can be profitably sold, small blocks are cut clean in order better to promote new growth.

The law of July 20, 1893, on the preservation of "Protecting Forests" and against the destruction of forests, has special provisions relating to "Protecting Forests," by which are meant forests serving as a protection against snow avalanches, stone slips, alteration of river beds, shifting sand, or as a special protection to other forests or to inhabited country. "Protecting Forests" are also such as bound districts and mountain forests, which, from their situation on the slopes of high mountains or in the neighborhood of the sea, or in the far north, grow so slow that they would die out if neglected. Under "Protecting Forest Lands" are also included bare fields, to be planted in the future to serve as other "protecting forests." The municipal council selects three men, who, after consulting the public forest officer, propose the localities within the district to be considered as "protecting forests." The municipal council has then to fix the boundaries of the forests, and on the proposition of the forest inspector of the district to determine the rules for its management. These regulations must have the sanction of the king to be valid. The municipal council can also

make reservations, subject to the king's approval, against the destruction of the forests in general. Such municipal regulations relating to "protecting forests" and forests in general may probably also include compulsory regulations as to planting and sowing of forests already cut down. No other laws relating to forest culture exist in Norway.

The damage caused by fires in the public forests is inconsiderable. Many years there is none; and the damage done to private forests is of small account and unreported. The principal cause or causes of such fires is carelessness of owners, fishermen, cowherds, etc., as well as the burning of heather for cultivation of the land. The law of July 14, 1893, on ' Fires in Forests and Fields,' with the supplemental law of July 27, 1896, has provisions relating to the prevention and extinction of forest fires.

The central administration of the forests is directly under the department of the interior, without intermediate officers. The service is under the charge of the chief (the director of the forests), and there are 4 forest inspectors, 25 forest officers, 1 forest engineer, 2 assistants, 7 forest planters and 363 forest guards. The yearly salary of the chief (the director) is \$1,450, without additions. The inspector's salary is \$800, increasing up to \$970. The forest officers', \$480, increasing to \$800. All these functionaries have their traveling expenses paid when traveling in the service of the state. The officers and the inspectors hand in every year a report to the director, who publishes a report on forest matters generally every third year. The only forest periodical in Norway at present is the "Tidsskrift for Skovbrug," (Periodical for Forestry), published by the Norwegian Association for Forestry.

#### PRIVATE FORESTS.

The aggregate extent of private forests is 18,000,000 acres, of which about 276,000 acres are managed on forestry principles. The average value per acre is from \$4.28 to \$5.36,

and the average annual rate of net income is from 55 to 60 cents per acre. The cutting undoubtedly exceeds the natural increase of the forests. The supply of wood is consequently decreasing, and the size of the trees decreases. The government purchases annually forests to the amount in value of \$21,440. It has three large and several smaller nurseries. These supply the required number of plants to the public and to private parties. It has also four seed establishments, which supply the public and private demand with tree seeds. It also has two elementary schools of forestry, and it tries through its functionaries to instruct forest owners in rational management of the forests.

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### SWEDEN.

Sweden is a country about a thousand miles in length, and the climate of its northern part is about like that of northern New England. The beech, which is not found in Minnesota, flourishes in southern Sweden. It is a natural forest country; possesses a great deal of granite and iron, and abounds in lakes and rivers. As stated in my report of 1872 on Swedish Forestry, the great mass of the forests of Sweden is found in the north central part of the country, and consists principally of the so-called Scotch pine and the white or Norway spruce, both of which grow to great size and are highly esteemed for their timber. The most numerous species next to these is the white birch, which furnishes the principal fuel. In traveling through Sweden one sometimes passes very rough, rocky and seemingly sterile tracts. But even on these, through the impulse of forest culture, is seen springing up a fine young growth of trees. Indeed in many of the European countries the clean, well cared for and thrifty forest is to the thoughtful American one of the most striking and impressive objects. Only those who have seen the well administered forests of Europe can have a true idea of what forestry means.



## STATE FORESTS.

The report of the Chief of the Swedish Administration of Forests for the year 1895 is a quarto document in Swedish of 331 pages, besides numerous maps. From this it appears that the total area of forest-bearing land in the whole country is 47,000,000 acres, of which 12,000,000 acres belong to the state. The taxable valuation of the state forests is \$16,000,000. The revenue from the state forests for 1895 was \$1,100,000. In addition there was appropriated for forestry purposes \$100,000. The expenses were \$360,000, leaving a net income of \$840,000. The net income annually increases. The number of acres in the whole country sown or planted to forest during the year was 11,000; length of ditching made in forestry work was 130,000 yards. Notwithstanding there was warm and dry weather during the spring and summer months (with, however, occasional heavy rains,) there were but few forest fires, the number of acres burnt over being only 1,280. Increased care is shown in the use of fire in the woods. More injury appears to have been done by the blowing down of timber trees by storms.

The sum of \$25,000 of public money was appropriated and expended for the advancement of private forestry. In the southern district 5,500,000 trees were planted and over 2,000 pounds of fir tree seed sown. There were detailed six civil engineers, paid by the state, to instruct and assist private owners in regard to forestry and their work of various sorts on over 85,000 acres. There are employed in the state forestry service 347 officials, of higher and lower rank, whose aggregate annual compensation amounts to a little over \$100,000. The state maintains a forest institute or college at Stockholm (founded in 1828) for scientific and practical training in forestry. It also has forest schools in various parts of the country.

In the two northern provinces, Norrbotten and Westerbotten, a law prevails prohibiting the cutting of trees for

sale which are less than eight inches in diameter fifteen feet from the ground, and investigations have lately been made to determine whether this provision of law should not be extended to other provinces.

Sweden's annual exports of forest products amount to \$20,000,000 a year, and are steadily increasing, the result of the liberal and wise management of her forest resources which has been practiced for many years.

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## WURTEMBERG.

Wurtemberg lies west of Bavaria, and is the third German state in point of area, its population being a little over 2,000,000. Its greatest length from north to south is 140 miles, and its greatest breadth is 100 miles. One-third of the Black Forest (so called from the dark foliage of its pines, and which forms a sort of a triangle,) lies within Wurtemberg, two-thirds being in Baden. The Black Forest has a total length of 93 miles, and its breadth varies from 13 to 46 miles.

### STATE FORESTS.

The aggregate extent of the state forests is 418,904 acres, and they extend over the entire kingdom: 59 per cent of the forests consists of pine, 20 per cent being pitch pine and 9 per cent white pine. The estimated value of the forest land varies from \$29 to \$58 per acre. The annual aggregate expense of administration of the forest amounts to \$1,183,574. Of this \$364,140 is paid to wood-cutters, \$147,560 is expended on roads, \$90,440 in forest culture, \$259,468 for pay of officials, \$138,468 for forest guards. The revenue for 1895-1896 was \$2,928,352, yielding a net revenue, after deducting all expenditures, of \$1,744,778, or \$3.63 per acre. The number of acres annually sown to forest is 296, and the number of acres planted to forest, 6,177.

In regard to reforestation, when the natural seeding of the desired kind of wood occurs in proper time the same is used; otherwise planting or artificial sowing takes place. Natural sowing is estimated at about 25 per cent, artificial renewing amounts to about 75 per cent. The latter is almost exclusively done by planting, whereas sowing in free woodland is very seldom applied. It is a principle to maintain (as far as the division of the age of the plantings permit) an equal annual cutting. At present the cutting is fixed at 1.94 cubic metres per acre. The cutting is contracted for with laborers living in the neighborhood of the woods. By good management there are at a given plot generally trees of about the same age. If the natural seed falling is intended to be used the larger trees, either single or in crops, are cut out in a direction against the prevailing winds; the remaining trees are thinned and gradually cut out as the growing young trees may demand. If the natural seed falling is not taken into consideration, the wood crop is cut clean in narrow strips, also in a direction against the prevailing winds, and the cutting of the second and following strips is postponed until the young plantings can dispense with the side protection of the old woods. It is a principle that replanting follows immediately after the cuttings. Moreover, the state buys every year about 400 acres of woodland to increase and round off the forests.

The amount of damage annually caused by forest fires is only \$642.60, and the principal cause of such fires is carelessness and negligence while smoking and lighting fires in or near the forests. In the last ten years out of 120 forest fires only 8 were caused by sparks from locomotives, and of these only one caused considerable damage (about \$3,570).

In regard to the rank in the forest service, as compared with other branches of the public service, it may be said that the forest officials rank in general equally with those state officials who are graduates of the university. The

Department of Forests is directed by one president, four technical and four administrative members and one commander of the forest guards. The salary of the president is \$1,844.50 per year; the salary of the members of the Board of Direction is from \$1,190 to \$1,618. A work entitled "The Forests of Wurtemberg," published by Rueger, Stuttgart, 1880, gives a fair review of the situation of the forestry of the country. It may here be stated that in respect to net revenue Saxony and Wurtemberg stand at the head of forest administration and culture in general.

#### PRIVATE FORESTS.

The aggregate extent of private forests is 528,794 acres, of which 210,000 acres are administered by technical forest officials; the remainder is also administered in a proper manner. As the permission of the government is required for cutting and replanting of forest lands, and this permission is only given under the condition that an equal area to what has been cut shall be planted, the aggregate area of forest land remains the same throughout the whole country; but portions of it are gradually coming into the possession of the state government.

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#### RATE OF INCREASE ON THE CUT-OVER TIMBER LANDS IN MINNESOTA.

During the past year Minnesota made a valuable contribution to the cause of forestry in the form of Bulletin No. 49 of the Agricultural Experiment Station, St. Anthony Park, Minn., prepared by Prof. Samuel B. Green, horticulturist, assisted by Mr. H. B. Ayers, timber expert, of Carlton, Minn. The bulletin shows the results of recent actual studies in the field of the rate of increase of timber on cut-over lands in the state, contains numerous striking illustrations, also quotations of the opinions of several prominent



lumbermen. One of its leading objects is to show that the proper management of forest land will be profitable to the individual owner. It is also designed to show what an immense loss would annually be caused to the state by forest fires in the absence of precautions against them. The following instructive passages are below quoted, omitting, however, the tables:

#### INCREASE ON SMALL TREES.

##### WHITE PINE OVER-TOPPED BY ASPEN.

Frequently, between the groups of log timber in the natural forest, are areas well stocked with pine not yet large enough to cut. These are left uncut in logging. On one-tenth of an acre that is typical of such forest was found the stock shown in Table XIV.

This plat is unusually heavily wooded. Lying immediately below a beaver dam, it has a good supply of water; the soil is fertile, porous, and over one-half clay. This acre is especially promising for a large yield of good timber. The pine trees will soon over-top and suppress the aspens and then will make a much more rapid growth than at present; the trunks are already long and free from branches. The number of white pine trees at present on this acre is 370, and will be abundant stock after the aspen is gone; in fact, the yield tables show for stock of first quality, of this height and age that about 214 trees is the normal number. Although the cubic feet of pine alone is less than the normal amount as given in the yield table, the amount of aspen and pine together is more than double this amount.

The 1,088 cubic feet of aspen may be removed and the pine left in better growing condition than it is now.

Assuming that this acre would, if the aspen were now cut, speedily reach the normal accretion (it is really expected to exceed it) the future growth may thus be found in the yield tables. On this basis, in twenty years from now, this acre, at present not worth logging, may be expected to yield, if protected from fire, 34,000 feet, B. M. If left 70 years, 50,400 feet, B. M.; 120 years, 70,000 feet with a possibility of its reaching 100,000 feet, the highest that may be hoped for in white pine.

There seems to be something incongruous in the fact that while this stock is worth nothing to-day in the market it would, in twenty years, yield 34,000 feet of lumber, Scribner's rule, worth say, \$3 per 1,000 feet on the stump, or \$102 for the acre. This discrepancy in the supposed present value of this stock is attributed to the danger of fire.

The state is invited to consider this fact, for this and many other similar tracts are on school and other state lands, and the question should be determined whether efficient fire protection cannot be provided for less than this figure, which is \$5.10 per year per acre. A photograph of this tract is shown in figure 1.

#### WHITE PINE AMONG WHITE BIRCH.

Another well-stocked tract of timber trees, too small to cut, and surrounded by stump land, is represented by the following one-tenth acre of white pine among white birch shown in Table XV.

Under the above mentioned trees is a light growth of hazel and vine maple.

Comparing this with white pine in the yield tables, it is found there that an acre of white pine of second quality has a normal yield of 5,325 cubic feet at 85 years old, and an average height of 68 feet. As the white pine on this acre will probably over-top the birches within 25 years, it is thought that this one is in better condition than the normal one from the yield table, and while it would be unprofitable to cut this timber now, it may be expected when 100 years old, or 15 years from now, to yield at least 18,500 feet, B. M. This, at \$3 per thousand, would then be worth \$55.50 per acre. Its present worth, if safe from fire, should be \$26.69, yet it is of little if any value; this yield would be increased if the birch and aspen were cut at once. The soil is a light colored sandy loam of about the consistency of moulding sand, with a subsoil of boulder clay.

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#### INJURIES BY FIRE.

Fires stand eminently as first among the causes of injuries to the forest.

Fires in our state have destroyed large areas of pine log timber before it could be made accessible to market. In the western and in the northeastern portion of the pine region are large tracts of either aspen or white birch with uncut pine stumps and stubs standing thick among the brush and saplings, and in the wide belt of sandy land sweeping from Red Lake through Becker, Hubbard and Crow Wing counties to Mille Lacs, much Norway pine has been destroyed. Where accessible to market and where there is demand for lumber, the loss by the killing of mature trees is comparatively slight, as such timber can be cut the winter following the burning without much loss.

When half grown stock is killed by fire the loss amounts to the present worth of this stock, the value of seeding and shading trees,

and the value of the forest soil, from this may be deducted whatever marketable stumpage there may be left. In the case of such acres as are shown in tables XVIII., XIX., XX. and XXI., although there is now no marketable timber upon them, yet they have a stock that would with usual growth and at present price of stumpage be worth from \$50 to \$92 per acre in 20 years. If there were no danger of fire the present value of this stock would be found by simply calculating the capital that would in 20 years amount to the average, or \$71 per acre at a reasonable interest at 5% the present value, in this case would be \$26.76. But the danger of fire has discouraged lumbermen from holding their land for a second growth.

It is impossible for fire to run over any forest land without doing great damage. This damage is difficult to estimate, but it is plain that whatever land is kept non-productive, is at least being kept from yielding the average 50 cubic feet or 500 board feet for each acre each year.

The greatest aggregate damage is probably done by light fires that repeatedly run over the ground and prevent a new growth.

Spring fires are very damaging, for the trees being then full of sap, endure little heat, and the seeds which are on the ground and possibly just sprouted are destroyed.

Autumn fires, owing to the ground being very dry at that season, usually run deep, burning off the roots of the trees and consuming all the vegetable material which constitutes that valuable mulch and fertilizer called the forest floor.

The tangible causes of forest fires have been discussed so much that they must now be well known. The real cause is more remote and in the minds of the people. It might be called the lack of appreciation of the damage done by fires. Two essential steps toward the prevention of fires are, an appreciation of this damage, and a thorough co-operation among the people injured. As every taxpayer in the state is injured by our forest fires all should co-operate cordially in the very important work of preventing them.

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#### DONATIONS TO THE STATE OF CUT-OVER AND WASTE LANDS.

A bill, known as the Forest Reserve Areas bill, which, after very full discussion, was passed by the house of representatives of the last legislature and recommended for passage in committee of the whole of the senate but which did

not reach a final vote in that body, provided a way whereby the state could receive and administer, on forestry principles, donations from individuals of cut-over and waste lands unsuited for agriculture. The project originated with and was drawn up with great care by Captain Judson N. Cross, a member of the Minneapolis bar and disinterested citizen, and previous to its introduction in the legislature had been before the public upwards of a year and been fully discussed and indorsed by the Forestry Association and State Horticultural Society.

As passed by the house of representatives the bill provided for a forestry board of nine members, to be selected in an impartial and non-partisan manner—namely, three by the regents of the University, one by the Agricultural Society, one by the Horticultural Society, one by the Forestry Association, one by the Fish and Game Commission, one to consist of the Horticulturist of the Experiment Station, and one to consist of the Chief Fire Warden. Of the revenue which should be derived from the lands two-thirds were to go to the support of public education and one-third to the state to defray the cost of administration and to indemnify towns in which the lands might be situated, in lieu of taxes, for support of roads.

It seems a misfortune that this bill failed to become a law. It was well known that at least one large owner of cut-over lands had promised, in the event of its passage, to donate to the state in different tracts an aggregate of 11,000 acres. Unquestionably any one who should donate land under such a law would be a benefactor.

The bill was exceedingly economical in all its features and if it had become a law it would, apparently, if wisely carried into execution, have inaugurated a forestry system of great benefit to the state.



## OPINIONS ON THE FIRE WARDEN LAW.

Many influential journals and periodicals have expressed favorable opinions of the attempt which Minnesota is making to prevent forest and prairie fires. The following are some of the more recent opinions on the subject:

*[Resolution Adopted by the American Forestry Association at its 15th Annual Meeting, held at Washington, D. C., Feb. 5, 1897.]*

*Resolved*, As a fundamental proposition of rational forestry, we commend the well-organized effort of the State of Minnesota to suppress forest fires, being aware that no advance can be made in forest management without such protection.

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*[From a Letter of Mr. B. E. Fernow, Chief of the Division of Forestry, U. S. Department of Agriculture.]*

I am astonished to hear that there was danger of the legislature of your state abolishing the forest fire law. That there should be any disposition to annul or that there should be need of any argument to defend the protection against fire losses as provided is almost incredible and proves the position which I have frequently taken, correct; namely that we have not as yet reached a high plane of civilization, when it is still debatable, whether or not it is the first duty of government to protect property, forest property as well as any other property, against willful damage and destruction.

It augurs a low state of public or civic morality, that there can be a question as to whether it is or is not the duty of the state to prevent or to stop the forest fires, which injure present and future communal interests.

The loss by these forest fires is much greater than can be told by the amount of timber killed or other property burned up. The incidental losses are much greater than the direct losses. In the first place they discourage any man from taking care of a property so hazardous, they encourage uneconomical and wasteful cutting of timber in order to avoid loss of the same; they burn up not only but make often impossible a useful aftergrowth and render large areas unprofitable. It is within bounds to assert that the loss in money to the state by the forest fires is a hundred times greater by land becoming useless brush and hence untaxable, producing no value and becoming a burden to the taxpayers, than need ever be expended by the state in preventing these fires.

[*From the Northwestern Lumberman, Chicago, June 5, 1897.*]

There has been enough destruction of life and property from forest fires in Minnesota to force on the minds of people and legislature that it is not only a matter of good public policy, in an economic sense, to prevent forest fires, but it is a duty as well in point of simple humanity. Yet at its last session the legislature came near repealing the fire warden law. The law makes the state auditor forest commissioner, and the supervisors of towns, mayors of cities, and presidents of village councils fire wardens of their respective towns, cities and villages. There is also a chief warden, who may appoint such other wardens as he may deem necessary, living in or near the unorganized territory of the state. The chief fire warden receives a salary of \$1,200 a year, which is modest enough for an officer of such responsibilities. He represents the authority of the forest commissioner, and is required to enforce the law for the prevention or suppression of forest or prairie fires. He has charge of the fire wardens, and can mass them at places of especial danger from fire. He must coöperate with any local police force, or with any military force of the government which may be detailed to guard the national domain from fire. During a dry season, when forest or prairie fires are prevailing, or are liable to break out, he can use such means under his command as he may deem necessary to prevent or suppress fires, and expenses of such work are to be paid by the state, but must not exceed \$5,000 a year. The law is specific about the careless setting of fires, or leaving them to burn, and fines are assessable on those who are convicted of such wanton carelessness, and imprisonment is also made a penalty. There are other provisions in the law, all designed to prevent and suppress forest and prairie fires.

The law is a good one, and its only fault, it should seem, is that it is niggardly in the amount of appropriation which can be used in the service.

Nothing can be more essential than the prevention and extinguishment of forest fires. Millions of feet of good timber is annually destroyed in the pine states by fire. Not only this, but many lives are lost in the course of a few years in a manner the most horrible that can be conceived. It would seem that such examples as the conflagrations which swept Peshtigo, the "Thumb" of Michigan, Phillips, Wis., Ontonagon, Mich., Hinckley, Minn., and many other towns and localities in the last thirty years, should have made such a deep impression on the public mind in the states named that any promising preventive measure would be hailed with satisfaction and supported with enthusiasm for the sake of humanity, if nothing more. Especially should pine land owners and logging operators coöperate in preventive measures. They are the people whose property interests are involved, and the

ones who do more to make destructive fires possible than all others combined. They cut and haul away the logs, leaving the tops and branches where they fell, which in a year become like inflammable tinder, ready to leap into flame at the touch of a spark, and spreading conflagration as far as the debris covers the ground, often miles in extent. Since logging operators are allowed to leave so much food for fire without regard to the consequences, they are the last men who should have the face to presumptuously object to a warden law which seeks to mitigate the greater damage and horror of forest fires. They get off easily if they are simply required to acquiesce in the law and the warden service. \* \* \* \* \*

There is a growing sentiment in the country at large in favor of forest preservation. While any movement with this object in view should not prevent the use of mature or merchantable timber, or trench on the rights of private owners in this regard, there should be given all reasonable encouragement to public endeavor to prevent careless and wanton destruction of remaining forests. The first and main requisite to this end is to save the forests from fire. The warden law of Minnesota may not be perfect, and may need amendment; but it is a movement in the right direction and should be sustained. Repeal would be a step backward worthy only of a semi-barbarous state. It is to be hoped that before the meeting of the next legislature such an educational influence may be brought to bear that the cohorts of the fire fiend in that body, should they make another attempt at repeal, may be routed, foot, artillery and dragoons, and sent scurrying from the field.

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[*From the Mississippi Valley Lumberman, Minneapolis, June 11, 1897.*]

The forest fire law of Minnesota may yet prove a blessing to the people of the state before the year is over. Early in the spring fires began to burn in the timber regions northwest of Duluth, and while as yet they have not been serious, the worst time of the year—August and September—is yet to come. It seems strange that in the face of the great loss of life by the forest fires that burned Hinckley, Minn., and other villages, and burned to death hundreds of people three years ago this summer, that a legislature could even for a moment think of repealing the only law on the statute books looking towards the prevention of forest and prairie fires. This, however, as will be remembered by our readers, was attempted in the recent legislature of Minnesota, and was only defeated and the law allowed to stand by a small margin. The Minnesota fire warden law has only been tried



two years and should not be repealed until experience proves it to be entirely worthless, which it is not likely to do, and then some substitute should be provided for it. If the present law is faulty in any respect, it should be amended and made better. The lumbermen and loggers of the state are interested in the matter for the valuable property that belongs to them is constantly in danger during the summer months. They should be as careful as possible about leaving tree tops and other inflammable refuse on the ground after logging on a tract, to burn like tinder when ignited. It is the duty of presidents of village councils and mayors of towns to act as fire wardens, and, under the instructions of the chief fire warden, to call upon citizens to assist in putting out forest and prairie fires. It is not an easy matter to put out a first class forest fire, as all lumbermen and woodsmen know, but a great deal can be accomplished in preventing the starting of fires and in extinguishing incipient ones. Under the Minnesota law, the state auditor is *ex officio* forest commissioner. The chief warden reports to the auditor, and the fire wardens in every town report to the chief warden. The fire wardens have authority to compel citizens to come to their aid in putting out fires whenever necessary. There may be one fault with the Minnesota law in that it does not appropriate enough funds to carry on the work, only \$5,000 annually being allowed. *The Lumberman* hopes, for the protection of the lives and property of the residents of the forest regions of the state, that it will never occur to another legislature to attempt to repeal the forest fire warden law, without substituting for it a better law than the present one.

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[From Mr. Charles A. Keffer, Assistant Chief of the Division of Forestry, U. S. Department of Agriculture, Washington, D. C., June, 1897.]

The public interest in the protection of forests from fire has reached a point where no defense of legislation having this aim in view should be necessary. A review of such legislation shows that the setting of forest fires maliciously has been regarded a criminal offense since the early settlement of our country, but it has only been within the past two decades that adequate legislation for the protection of the forests has been enacted. Indeed such legislation can never be called adequate until the full protection which it seeks to assure is provided. The states in which the greatest advance in forest fire legislation have been made are Minnesota and New York. The Empire State is the original defender of its forests from fire, and the laws of the Western state named are based upon those of New York.

While extensive fires continue in every part of the forest area of the country, it is encouraging to know that both in extent and in de-



structiveness a noteworthy reduction has been made where the laws have been most perfected.

Forest fire legislation acts quite as much as an educational as a prohibitive force. In the State of Minnesota, for instance, the writer in his travels throughout the state, in both prairie and forest regions, has been confronted with the printed law at every railway station, and he has frequently seen them in schools and postoffices. Otherwise careless citizens have thus had their attention called to this important matter, and the most prolific cause of forest fires, thoughtlessness or carelessness, has been averted. For there can be no question that neglect or lack of proper care in the kindling and extinguishing of useful fires is a most prolific source of danger to the forest. The pleasure seeker, whose attention has been attracted at every station between his city home and his outing place, has been awakened to the damage his carelessness may cause. The woodsman, to whom life-long familiarity with camp fires has only brought indifference in their handling, will be arrested and restrained by the knowledge that such carelessness is criminal. The railroad employe will be more and more careful in cleaning his right-of-way, knowing the danger of dismissal which is likely to result if his company is held responsible for damage that he has caused.

And thus it appears that following the passage of legislation, that is to a degree in advance of public opinion, the first beneficial result to be noted is in the nature of education. During this period there is sure to be something of a reaction against the law itself, but this reaction must not only be withstood, it must be overcome, and the reform extended until the imperiled right or resource shall be fully protected. The states within the forest area have so long endured destructive forest fires that the people have come to regard them as a necessary evil. It required the awful holocaust of Hinckley to awaken us fully to the fact that the remedy of such calamities is within ourselves—that we have only to respect property rights as we do human rights to make forest fires almost an impossibility.

Existing forest fire legislation is nowhere perfect; there is yet to be devised a system that shall include as its basis the patrol of the forest for the detection of incipient fires, and the arrest of careless citizens who may cause them. Such a system seems yet too expensive to the average American, but the expense is as nothing compared to the value of the resource it is sought to protect, and with fuller appreciation of our forests will come adequate means for their protection.

## THE ONTONAGON, MICH., FOREST FIRE AGAIN.

Fearing lest the telegraphic reports, at the time, as to damage caused by the forest fire at Ontonagon last August (during the same sort of weather that we had in Minnesota) might have been exaggerated, I wrote to the postmaster there for information and received his reply after a part of this report had been printed. He states:

The loss went over a million dollars, probably one and a quarter million. The town is not building up again. The only industry we had has moved away from here to Green Bay, Wis. We had two fine saw mills, owned by the Diamond Match Co., and they have bought a mill at Green Bay and are hauling their logs away, which leaves this town without any industry whatever.

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CONCLUDING REMARKS.

With regard to the effectiveness of the fire warden law people should remember that a large part of the territory in northern Minnesota is uninhabited and consequently without fire warden service. Such territory is frequented by hunters, land seekers, timber cruisers, mineral prospectors and others, and fires are liable to occur. Warning placards, however, have been posted in a part of the territory, and scarcely any one now going into the woods has failed to see such warning notices at some place. If means were available for keeping reliable patrols in the forest during dry weather the danger from fires would be lessened.

"Take precautions!" Section 6 of the Forest Preservation Act provides: "It shall be the duty of each fire warden to take precautions to prevent the setting of forest or prairie fires." Prevention is the one great thing; and I have instructed fire wardens not only to post warning notices but to verbally caution people against causing fires in dry weather; also, in a very dry season to go over their districts to see that no dangerous fires occur. Some effective prose-

cutions have been made for violations of the law and others will be made if occasion arises.

But the main work under the fire warden law is educational; to make people more careful about causing fires, and more thoughtful of the benefit to the public and to individuals of forest resources. When people understand the benefits to be derived from a rational management of our forests and forest lands, then, and not till then, will there be a public sentiment that will make the fire warden law as effective as it should be.

There are several million acres, in detached areas, in our state only fit for growing timber. Trees take from the soil only a twelfth part of the mineral substances required for field crops, hence it is profitable that the non-agricultural lands be retained in or planted with timber. Properly protected and managed our forests might afford a sustained, permanent and growing industry, furnishing in logging and the working up of lumber wages for many thousand more laborers than are now employed.

Forests hold much more moisture than bare land, they maintain the supply of water in streams and tend to prevent overflows and inundations; they enrich the soil; they modify the extremes of temperature and lend beauty to scenery. Forest belts, as windbreaks, lessen the injury of droughts. Forest fires not only destroy valuable property but they make families afraid to come in and settle up the land available for agriculture. These are some of the facts that old and young might think of with profit.

As a means for awakening increased interest in the subject of forestry I would recommend that at future meetings of the Farmers Institute some one of the speakers be designated to explain and advocate the principles of forestry. Also, I would hope that the Forestry Association would try to organize through the state local forestry societies.

The legislature of New York has just appropriated \$1,000,000 to purchase for the state more forest land in the

Adirondacks in addition to the 800,000 acres the state now owns. Our neighbor, Ontario, has reserved as a forest park for the recreation of her people over a million acres of beautifully timbered land in one body, only 150 miles from Toronto, and which even now attracts tourists from the United States. It is estimated that New Hampshire annually receives from 40,000 to 50,000 visitors attracted by her mountain and forest scenery and who leave in the state \$6,000,000 to \$8,000,000.

Minnesota, more richly endowed with lake and originally with forest scenery than almost any other state, has the Itasca state park of 19,000 acres 240 miles north of St. Paul and of which 7,000 acres were given by Congress on condition that the state would protect the timber, and 2,452 acres bought of the Northern Pacific Railroad Company at fifty cents per acre. The park is well wooded with pine and other varieties of trees, and if enlarged will prove of great value. Nearer than that, on the shores of Mille Lacs lake, Leech lake and near Cass lake, are still splendid original forests, and if the state would now, when it can do so cheaply, acquire possession of and hold for park purposes a large area in one or more of these localities it would eventually, among other advantages, be the means of attracting a great many visitors to our state and also help to develop interest in better forest management.

Respectfully submitted,

C. C. ANDREWS,  
*Chief Fire Warden.*





SIXTH BIENNIAL REPORT

OF THE

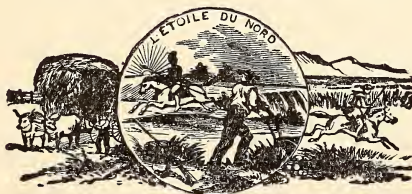
MINNESOTA

STATE DAIRY AND FOOD

COMMISSIONER.

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Transmitted to the Legislature of 1897.



ST. PAUL, MINN.  
THE PIONEER PRESS COMPANY.  
STATE PRINTERS.  
1896.

STATE OF MINNESOTMA, }  
DAIRY AND FOOD DEPARTMENT, }  
ST. PAUL, Aug. 1, 1896. }

To His Excellency D. M. Clough, Governor, and the Legislature of  
the State of Minnesota,

Sir: In accordance with the provisions of law, I have the honor herewith to transmit the sixth biennial report of the Minnesota State Dairy and Food Commission, for the biennial period ending July 31, 1896.

Respectfully,  
BERNDT ANDERSON,  
Commissioner.

## Minnesota State Dairy and Food Commission.

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BERNDT ANDERSON.....	COMMISSIONER.
E. J. GRAHAM.....	ASSISTANT COMMISSIONER.
A. H. BERTRAM.....	ASSISTANT COMMISSIONER AND SECRETARY.
C. L. SMITH.....	ASSISTANT COMMISSIONER.
E. N. EATON .....	CHEMIST.
E. B. WILLIAMS .....	INSPECTOR.
S. M. WEST.....	INSPECTOR.
G. G. SANBORN.....	INSPECTOR.
A. SNYDER .....	INSPECTOR.
C. B. DAVIS.....	INSPECTOR.
J. E. GETMAN .....	INSPECTOR.



## CONTENTS.

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- Part I. Report of Berndt Anderson, Commissioner.
- Part II. Report of E. J. Graham, Assistant Commissioner.
- Part III. Report of E. N. Eaton, Chemist.
- Part IV. Report of E. B. Williams, Cheese Inspector.
- Part V. Report of Minneapolis Office.
- Part VI. Report of Duluth Office.
- Part VII. Dairy and Food Laws.

# PART I.

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## REPORT

OF THE

# STATE DAIRY AND FOOD COMMISSIONER.

Transmitted to the Legislature of 1897.

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Two years having elapsed since the issuance of the last biennial report of this department, it again becomes my duty, under the law, to place before the people of the State of Minnesota an account of my stewardship since that time.

The work of this department has followed in the lines I laid out at the time I accepted the position of State Dairy and Food Commissioner. The wisdom of my course has been fully demonstrated, as the reader will perceive by perusing the tabulated reports following later. It has been my endeavor to look after the pure food as well as the dairy interests in all parts of the state, as it is a well-known fact that the remote districts offer to the vendor of spurious goods the more inviting field for operation, coupled with the fact that their work can be carried on with less danger of detection than in the larger cities and towns of the state. While I do not pretend to say that the state is entirely free from all spurious and illegal goods that are prohibited by law, yet I can truthfully say that our markets are in a more satisfactory condition than in former years. We have been materially assisted in our work by the hearty coöperation of our wholesalers and large dealers, who consult with this department before buying, regarding the true character of certain goods they are obliged to place upon their shelves for sale throughout the state, and by their acting upon our advice in the matter. Such assistance as this, coming from

the right direction, I most highly appreciate. Our merchants and manufacturers have shown a disposition to place only the better class of goods upon the markets of the state, and are the most earnest advocates of the pure food laws.

While this department has made a good record and has gained a national reputation, it could yet be made more effective by a few slight changes in some of our laws. The Minnesota dairy and food laws have been upheld by the courts in every case where their validity have been tested, and are to-day probably the best of their kind in the United States; yet by repeatedly having had occasion to test them, I can see where a few slight alterations would make them still more effective than at present, and would tend to make them less cumbersome and also accelerate their enforcement. I endeavored at the last session of the legislature, to the best of my ability, to accomplish the passage of a bill with amendments covering the ground, but failed in every instance. I assumed that, as I was the party in whose hands these laws had been placed for enforcement, I was in a position, after having tested them in the courts of the state on numerous occasions, to ascertain their weak spots and suggest proper remedies; but owing to the deluge of bills before our legislature, our department bills were either lost entirely or found a final resting-place in some committee. I am in hopes during the ensuing session of our legislature to effect the passage of a bill incorporating the confiscation clause in all of our laws, as in the case of the oleomargarine law, which has resulted so successfully in driving this compound from our state.

This department should also have an increased appropriation of \$7,000 to carry out the provisions of our pure food laws, and also to enlarge the scope of our work by including in the list already under our jurisdiction such items as spices, syrups, sugar, coffee, and many other things the present law does not include. In the matter of spices alone, we find the greatest amount of adulteration; it is almost impossible to obtain a pure article, regardless where or by whom made, and many of the adulterants used are indisputably detrimental to the public health.

There is now appropriated for the use of this department \$18,000, \$15,000 of which is for the enforcement of the dairy laws, and \$3,000 for the enforcement of the pure food laws. While the dairy interests are sufficiently endowed, the amount set apart for the enforcement of the food laws is woefully deficient, nor do I feel justified in diverting these funds from the purposes for which they were created; hence the food laws cannot be as persistently and vigorously enforced as I could wish.

Under the provisions made for the dairy interest, that branch of industry has received a stimulus that is truly wonderful. Creameries and cheese factories have sprung up on every hand; a fine grade of dairy products is placed upon the markets of the East that is truly creditable to the new dairy regions at the headwaters of the Mississippi. Nor will this condition end here; with the encouragement this enterprise is at the present time receiving, it will reach forward to greater victories. Minnesota is especially adapted, by reason of her climate, luxuriant wild grasses and abundance of pure water, to this branch of industry. The state dairy and food department is employing every means within its power to aid and encourage it in every locality where it can be profitably carried on, fully believing it to be the only true solution of the agricultural problem at the present time. We find by actual observation that the portions of our state that have been engaged in dairying as a business have scarcely felt the stringency of the times for the past two years, while the wheat raising portions have suffered severely. These facts becoming so indisputably apparent are tending to give diversified farming an impetus in this state that it has never before experienced.

The farmers of the state are rapidly disposing of their scrub cows and are replacing them with the best dairy and beef breeds, and to-day the careful observer can observe as he passes through our farming districts the effects of the introduction of this new blood. Improved machinery and appliances for the manufacture of the best grades of butter and cheese have taken the place of the crude methods of pioneer days, and as a result the butter of to-day would be ashamed to recognize its relative of "ye olden time." The dairymen of Minnesota are cognizant of the fact that, in placing their butter and cheese upon the markets of the world, they will come in competition with the old and established dairy districts that have always held an advanced position in this branch of industry, and that the rule "the survival of the fittest" will inevitably prevail, and that, in order to successfully compete, the latest and most approved methods must be relied upon, and the best dairy blood secured for the improvement of the herds. The rapid strides Minnesota has made in this direction in the past two years are noted later on in this report.

Two years ago I deemed it advisable to establish a branch office in the city of Duluth and place it in charge of a resident inspector. The wisdom of my course has been verified, and I am in receipt of many communications attesting to the improved condition of the



dairy as well as the food products in that city. Duluth was also the gateway of the oleo trade that required the constant vigilance of the inspector. Since the establishment of the Duluth office, the oleo trade there has dwindled to nearly nothing.

### MILK.

This product is the base from which all dairy products are made. It is also used as a beverage during the summer months, by a large portion of our people. It is also the food of the babes of the land, and upon its purity and freedom from contaminating influences depend in a large degree the health of the child. It is, therefore, important that it should be placed before the people in all purity. The greatest of care should be exercised regarding its environments, and the utmost vigilance exercised in the detection of any signs of disease among members of the dairy herd. Nothing is so sacred as the public health, and it should be jealously guarded; everything tending to impair the same should instantly receive the stamp of condemnation. Some physicians hold that a great deal of the sickness among children of the large cities is directly traceable to the milk supply. That may be true in such cases, but in the cities of the West, especially in Minnesota, such is not the case. If all the cities of the United States were blessed with the high grade of milk that St. Paul, Minneapolis, Duluth and other cities of Minnesota enjoy, the difference would be noticed in the decrease in the mortality lists of the children in such cities. The present excellent condition of the milk supply in Minnesota is due to the vigilance of this department. Inspectors are constantly patrolling the city, taking samples from wagons and stores where milk is sold; also, an inspector meets the trains each morning and takes samples of all milk shipped into the cities. Our inspectors also visit the creameries and cheese factories throughout the state, sample the milk and note the surroundings and sanitary conditions. Most of the creamery and cheese factory people buy their milk on the test plan and pay for it in accordance with its quality. This is the only honest way, and the dishonest milkman gets no advantage over his honest neighbor, but at the same time gets all he is entitled to receive. While the dairy interests of this state have been carefully looked after by provision of the law, yet one oversight occurred in not making provision for the inspection of dairy herds, regarding the health of the same, by providing this department with a veterinary surgeon. But this matter was rem-

edied to a great extent at the last session of the legislature by the appointment of boards of health with competent veterinarians, and clothing them with powers sufficient for the exercise of their duties. This is a step in the right direction; and although their duties are embraced in the provisions of the law governing this department, yet we heartily indorse their work and will at all times most cheerfully coöperate with them in stamping out any disease in its incipency. Unless we have healthy cows, it is useless for us to expect healthy milk.

While there have been a few cases of tuberculosis in this state, no alarm has been felt regarding its spread. Cattle found to be affected by it have been destroyed under direction of the boards of health. Another very good law passed last winter is the one requiring those receiving milk to thoroughly scald and cleanse the cans before returning them. Milk cans found at the railroad depots were in such a filthy condition that a law of this kind became imperative. A similar condition in this respect exists to-day. The St. Paul office has taken samples as follows during the past two years:

Year.	Month.	No. of Average		Babcock	Test.
		Samples.	Fat.		
1894.	September .....	78	4.22		
	October .....	68	3.97	"	"
	November .....	32	3.96	"	"
	December .....	42	3.81	"	"
1895.	January .....	20	4.15	"	"
	February .....	31	3.90	"	"
	March .....	210	4.02	"	"
	April .....	204	4.04	"	"
	May .....	376	4.09	"	"
	June .....	193	4.06	"	"
	July .....	96	3.95	"	"
	August .....	125	3.75	"	"
	September .....	136	4.05	"	"
	October .....	186	4.03	"	"
	November .....	147	4.00	"	"
	December .....	30	3.95	"	"
1896.	January .....	26	4.04	"	"
	February .....	31	3.97	"	"
	March .....	38	4.07	"	"
	April .....	136	4.01	"	"
	May .....	116	4.00	"	"
	June .....	26	3.97	"	"
	July .....	164	3.95	"	"
Total .....		2,511	3.99	Grand average.	

It will be seen by the foregoing table that milk runs higher in quality during the cool months than it does during the warmer ones; and upon considering the great number of samples taken, and the high test it has shown, it must be as gratifying to the con-

sumers as to myself. The state standard for milk is three and one-half (3.50) per cent butter fats, and the table shows a close proximity to four per cent by months, with a grand average for two years of three and ninety-nine hundredths (3.99) of one per cent.

Referring to the reports of the dairy commissioners of the states of Massachusetts, Michigan, New York, New Jersey, Vermont, and Wisconsin, my attention is called to the milk standard adopted by those states, and I will give it for the information of those interested:

Minnesota—Water, 87; solids, 13; butter fat, 3.5.  
Massachusetts—Water, 87; total solids, 13; solids, not fat, 9.3.  
Michigan—Water, 87.50; total solids, 12.50; fats, 3.  
New York—Water, 88; total solids, 12; fat, 3.  
New Jersey—Water, 88; solids, 12.  
Vermont—Total solids, 12.5; solids not fat, 9.25.  
Wisconsin—Butter fats, 3.

The specific gravity of normal milk at 60° F. ranges from 1,029 to 1,034. Skimmed milk at the same temperature has a specific gravity of from 1,034 to 1,037. The specific gravity of watered milk is from 1,028 downwards in accordance with the amount of water the milkman's conscience will allow him to use, and that amount varies with the milkman.

You will perceive at a glance that the standard for butter fats is higher in Minnesota than in any of the others. I fail to see the reason that it should not be placed at 3.50 per cent in all the states. It cannot be that the wild pasturage of this state is more nutritious than the tame pastures of the older states. The milk gathered by our inspectors show tests every day where it ranges from 4.00 to 5.50 per cent and very seldom below 3.50, unless it has been tampered with. It was thought when the Minnesota standard was adopted, that 3.50 was excessive, but after eight years' experience we are satisfied that it is none too high. This high standard has been the cause of bringing a better grade of cows into our state, and purging it of the useless and expensive scrub. The cheese factories and creameries of the state have adopted the test plan in buying their milk; a person now gets what his milk is worth in fats, and it is the only honest way of dealing in this commodity and insuring evenhanded justice to all the patrons.

The following list of cases was tried before the municipal and district courts of Hennepin and Ramsey counties, for adulteration of milk, both by skimming and adding water, and also for failing to procure a license before engaging in the sale of milk, all of which is in violation of the laws of the state:



## MILK PROSECUTIONS.

Aug. 23, 1894. State vs. Thos. Holden, Duluth; charged with selling adulterated milk; proven guilty in municipal court and fined \$10. Bohrer and Hokemeier, witnesses.

Aug. 23, 1894. State vs. Oscar Peterson, Duluth; charged with selling adulterated milk; proven guilty in municipal court and fined \$10 and costs. Bohrer and Hokemeier, witnesses.

Aug. 23, 1894. State vs. John Urban, Duluth; charged with selling adulterated milk; proven guilty in municipal court and fined \$10 and costs. Bohrer and Hokemeier, witnesses.

April 23, 1895. State vs. E. J. Goodwin, St. Paul; charged in municipal court with selling skim milk; found guilty and fined \$25; sentence suspended. Sanborn and Eaton, witnesses.

April 23, 1895. State vs. Michael Driscoll, St. Paul; charged with selling skim milk; found guilty and fined \$25; sentence suspended. Sanborn and Eaton, witnesses.

Feb. 20, 1895. State vs. Gus. Bathke, St. Paul; charged with selling skim milk; found guilty and fined \$25; sentence suspended. Sanborn and Eaton, witnesses.

April 18, 1895. State vs. E. Asleson, Armstrong Station; charged with delivering impure milk to creameries; found guilty and fined \$10 and costs. E. J. Graham, witness.

April 15, 1896. State vs. J. W. Jennings, Armstrong Station; charged with selling sour milk to a creamery; bound over to grand jury; no indictment returned. E. J. Graham, witness.

April 15, 1895. State vs. Chas. Kaufman, Armstrong Station; charged with selling sour milk to creamery; bound over to grand jury; no indictment found. E. J. Graham, witness.

April 15, 1895. State vs. E. T. Connor, Armstrong Station; charged with selling unclean milk to creamery; bound over to grand jury; no indictment found. E. J. Graham, witness.

April 15, 1895. State vs. E. Ash, Armstrong Station; charged with selling unclean milk to creamery; dismissed on motion of prosecution. E. J. Graham, witness.

April 15, 1895. State vs. W. W. Sweet, Armstrong Station; charged with selling sour milk to a creamery; dismissed on motion of prosecution. E. J. Graham, witness.

Oct. 28, 1895. State vs. Minnesota Milk Co., St. Paul; selling skimmed milk; tried in municipal court; plead guilty; fined \$25. West and Eaton, witnesses.

Dec. 7, 1895. State vs. John Zinnell, St. Paul; charged with selling watered milk; found guilty and fined \$25. West and Eaton, witnesses.

Dec. 7, 1895. State vs. Wm. Dohman, St. Paul; charged with selling watered milk; found guilty and fined \$25. West and Eaton, witnesses.

Jan. 21, 1896. State vs. M. J. McMenemy, St. Paul; charged with selling watered milk; case tried and dismissed. West and Eaton, witnesses.

Jan. 21, 1896. State vs. Chas. Schanno, St. Paul; charged with selling skimmed milk; found guilty and fined \$10. West and Eaton, witnesses.

May 15, 1896. State vs. W. D. Tapper, St. Paul; charged with selling skimmed milk; plead guilty and fined \$20. West and Eaton, witnesses.

May 22, 1896. State vs. F. H. Pinska, St. Paul; charged with selling skimmed milk; plead guilty and fined \$25. West and Eaton, witnesses.

June 8, 1896. State vs. Minnesota Milk Co., St. Paul; charged with selling skim milk; plead guilty and fined \$25. West and Eaton, witnesses.

June 18, 1896. State vs. J. W. McGrath, St. Paul; charge with selling skimmed milk; tried in municipal court; case dismissed. Bertram and Eaton, witnesses.

July 20, 1896. State vs. N. Welch, St. Paul; charged with selling watered milk; plead guilty and fined \$10. West and Eaton, witnesses.

July 21, 1896. State vs. Chas. Jenson, St. Paul; charged with selling skimmed milk; plead guilty and fined \$25. West and Eaton, witnesses.



March 15, 1896. State vs. E. Smith, Richland; charged with selling adulterated milk; proved guilty and fined \$10 and costs. E. B. Williams, witness.

E. Smith, New Richland, Rice county, was arrested March 20, 1895, on the charge of selling adulterated milk to the Crescent Creamery Co.; brought before Justice M. F. Donohue, Faribault; plead guilty and was fined \$10 and costs. Milk tested — per cent.

May 15, 1895, Fred Gangloff was arrested and brought before Justice ———, charged with delivering adulterated milk to the Crescent Creamery Co. at Stanton; had a jury trial, and was fined \$10 and costs. Milk tested 2.80 per cent. Prosecuting attorney, J. C. McClure.

June 18, 1895, J. Johnson, Fergus Falls, was arrested for delivering adulterated milk to W. L. Chappell; brought before Justice Frankberg; plead guilty; fined \$10 and costs.

July 16, 1896, Fred Wetzell, Le Sueur Center, was arrested on the charge of delivering adulterated milk to J. C. Krinck; brought before Justice C. T. Kelly; plead guilty; fined \$10 and costs. Milk tested 2.4 per cent.

### BUTTER.

This article is the principal product of dairying, and an indispensable one as an article of diet. No meal, however humble, is complete without its presence; yet, as I remarked in a former report, "no one article produced on the farm has been more villainously abused." In times past butter making on the farm was not carried on as a source of revenue or as an important branch of farming; but the surplus over and above what was necessary for the use of the family was traded at the country stores by the housewife, as her share of the profits. At that time the milk was set in pans, in the pantry. No ice was then used. It was exposed to all the odors of the kitchen. Butter color was unknown, and the product of the churn presented all the shades from a pure white to the deepest yellow. Our country merchants would take it in trade for goods, dump it into a box in an indiscriminate mass, sell at retail what they could of it and ship the remainder to the cities as grease. The merchants of those times were the greatest losers, although they paid a low price for the stuff, yet it was above its true market value, in order to hold their customers.

Butter making of to-day is another thing. The education of our farm schools, farmers' institutes, and the many excellent dairy journals at hand have caused a revolution in the process of making butter. The latest improved machinery and labor-saving appliances have lessened the labor and given more satisfactory results than heretofore. Each year brings about improvements in the art, until at the present time butter making is reduced to a science, that if deviated from will tell its tale in the product.

The creamery has proved to be a benefactor to the locality in which it is situated. The poor butter makers can now sell their milk or cream to the creameries and cheese factories and receive

more for it than their poor butter netted them, besides placing a more uniform product upon the market and saving the housewife much work and vexation.

It is very gratifying to note the advanced position Minnesota has taken within a very short time in this branch of industry. Her exhibits at the Columbian Exposition reflected much credit upon the new dairy state, and only the past season at the National Dairy Convention at Cedar Rapids, Iowa, the Milton Dairy Company of St. Paul, Minn., took the grand trophy and medal of honor and sweepstakes premium over all competitors, in competition over Elgin and other exhibitors that had always been successful in securing the best prizes. These facts tend to make Minnesota reach for further honors; and that she will strive to use every improved method known to science and try to make her what she is destined to be, the greatest dairy state in the Union, her future actions will verify.

In order to carry on my work in a systematic manner, I have placed Mr. E. J. Graham of this department in charge of the creamery interests, and he has given it his personal supervision. I would respectfully call your attention to his report to me, of the work assigned him, which follows later on.

### OLEOMARGARINE.

It is certainly very gratifying to me to be able to state authoritatively that the sale of oleomargarine is a thing of the past, as far as Minnesota is concerned. There never was a time in the history of this department when the state was so clear of this vile product as during the past year. The decision of Judge Harlan of the United States supreme court has had a very depressing effect upon the traffic. This decision was all the more welcome to this department, owing to the fact that it was in accordance with my construction of the law, and a reversal of the decisions of the lower courts. Since this decision the manufacturers have withdrawn their business from this state. There are yet small quantities of oleo sold in the state, the sale of which we are powerless to prevent, owing to the fact that the oleo people have changed their base of supply from Duluth and established it at Superior, Wis., which places them outside of our jurisdiction, from which place they ship oleomargarine to the mining and lumber camps of Minnesota; and as our laws prevent us from seizing it in transit, or while in the possession of private parties who do not offer it for sale, we can do nothing. But the amount sold in this way is very much less than

ever before sent to these localities. But in no place in the state is oleo used on the tables of the hotels and restaurants, as it is held in court that oleo placed on the tables for guests where meals are sold is considered a sale, the same as if sold by the pound at retail. This has been the ruling in cases of this character that we have carried to a successful determination. I am now prosecuting a case against the Armour Packing Company, wherein I seized about twelve and a half tons of oleo from that firm in Duluth. The case is set for trial at the October, 1896, term of the United States circuit court at Duluth. The case being a very important one bids fair to be a veritable "battle royal," and its final determination is eagerly looked forward to, as it will probably have an important bearing upon the oleomargarine question in Minnesota in the future.

The oleo agitation within the different states is bringing this question prominently before the people, and it will not be long before it will meet with such an opposition as will compel its manufacture to cease. There is not the least doubt regarding its unfitness for human food. It is an illegitimate product, and comes in direct competition with a legitimate product, and common justice demands its suppression.

#### OLEOMARGARINE SEIZURES.

From Jas. McDonald, St. Paul, 1 tub.  
 From St. James Hotel, Duluth, 1 roll.  
 From O. Johnson, Duluth, 10 pounds.  
 From Frank Anderson, Duluth, 2 packages.  
 From A. C. Rubenacht, Duluth, 10 pounds.  
 From Henry Meyers, Duluth, 10 pounds.  
 From Campbell & Gerhart, Duluth, 10 pounds.  
 From Mrs. G. Benson, Duluth, 10 pounds.  
 From Geo. Sutton, Austin, 45 pounds.  
 From J. W. Laborn & Co., St. Paul, 60 pounds.  
 From A. Hassel, St. Paul, 3 pounds.  
 From J. B. Hurst, St. Paul, 10 pounds.  
 From Arend & Jurgens, St. Paul, 40 pounds.  
 From Mrs. Geo. Jacobs, Minneapolis, 5 pounds.  
 From C. M. Berrick, Minneapolis, 30 pounds.  
 From H. Bussi, Minneapolis, 10 pounds.  
 From Mrs. E. Merrill, Minneapolis, 19 pounds.  
 From E. Nitchie, Minneapolis, 5 pounds.  
 From T. Pensemault, Mountain Iron, 65 pounds.  
 From J. A. Griffith, Mountain Iron, 5 pounds.  
 From Mrs. Mary Coulter, Mountain Iron, 30 pounds.  
 From E. H. Douglas, Two Harbors, 4 pounds.  
 From McPhee Bros., Two Harbors, 17 pounds.  
 From J. P. Paulson, Two Harbors, 48 pounds.  
 From Lamb & McNaughton, Mountain Iron, 11 pkgs, 8 and 10 lbs. each.  
 From Soode & Telle, Biwabik, 48 pounds.  
 From Biwabik Supply Co., Biwabik, 3 packages.  
 From Kitto & Berinck, Biwabik, 5 broken packages.  
 From Pat McClary, Mountain Iron, 50 pounds.  
 From Murphy Bros., Mountain Iron, 4 packages.



From Thos. Dunsmore, Virginia, 5 pounds.  
 From Clemens & Cusick, Virginia, 26 pounds.  
 From F. Clary, Virginia, 1½ pounds.  
 From Field & Co., Virginia, 48 pounds.  
 From Mrs. M. Horrigan, Virginia, 6 pounds.  
 From Gus Errickson, Virginia, 1 pound.  
 From Kate Kain, Virginia, 5 pounds.  
 From Jackson & Co., Virginia, 8 packages.  
 From M. H. Martin, Virginia, 5 packages.  
 From W. B. Pratt & Co., Virginia, 2 packages.  
 From G. H. Terrett, St. Paul, 30 pounds.  
 From J. J. Brown, St. Paul, 400 pounds.  
 From Stone, Ordeau & Co, Duluth, 12 packages.  
 From J. Mandelert, Duluth, 6 packages.  
 From J. H. Delaney, Duluth, 6 pounds.  
 From Le Cocq Bros., Austin, 1 package.

#### PROSECUTIONS.

State vs. Armour Packing Co.; seized 24,248 pounds oleo; goods replevined and bonds given for their value; case now before United States district court. Seizure made by Snyder and Williams, inspectors.

#### CHEESE.

The cheese industry of this state is at the present time in a very encouraging condition. It is true that it does not increase in the proportion that the creamery interests do, but there are many causes for this. In the first place cheese factories operate only about six months in the year, and then it has had to contend with filled and skim cheese that has been placed on the market and sold under fancy brands as full cream and at a reduced price. These things have tended to discourage the manufacturers to a certain extent. Many farmers prefer to sell their milk to a creamery, owing to the fact that they have a market the entire year, and also because they have the skim milk returned to them, which is a great item were the farmer raises his calves and hogs. In the case of cheese factories, nothing is returned except the whey, which is not of much value as a food.

This department has made a vigorous and persistent fight against that vile product known as "filled cheese;" and for the benefit of the unsophisticated, I will explain that filled cheese is a product made in the semblance of cheese from skim milk. Other fats are substituted for the cream or butter fats that have been extracted; and it is needless to say that the manufacturers are not at all particular with reference to the quality of the fats that enter into its composition, as they do not eat it themselves. This is colored, and in many cases branded as a full-cream cheese and sold to the unwary. The fountain head of the filled cheese business with which we have had to contend was traced to Chicago, and



two or three commission firms there seem to be the distributors for the Northwest especially. But after seizing and consigning our seizures to the dump or garbage heap, they withdrew their business from our state. It is very gratifying to me to be able to state that at this time there cannot be found a single pound of filled cheese in Minnesota. The Minnesota Dairy and Food Department took a prominent part in the passage of a national law that virtually amounts to prohibition. I sent a member of this department to Washington during the pendency of the bill, to assist in its passage, and am well pleased with the results.

The cheese made in Minnesota is excellent in quality and texture. The one feature we desire, and that we have tried to impress upon the minds of the manufacturers, is the uniformity of color; but we have failed so far, although the color is better now than in the past. The Minnesota trade demands a soft, light-colored cheese, and the manufacturers are trying to please in this direction. The laws of Minnesota trade require a standard of forty per cent of fats to total solids, and our cheese exceeds that oftener than it falls below that figure. A stencil is also required with which to brand cheese of that standard, and a penalty fixed for using it on cheese below that standard of fats to total solids.

**STATE OF MINNESOTA**  
**No. 174.**

**FULL CREAM CHEESE.**

The above stencil is reduced in size, but its presence on any cheese is a guarantee of its purity. For a full and detailed report of the cheese industry in this state, I will refer the reader to the report of Inspector E. B. Williams of this department, to me, of the result of his work. Mr. Williams is a practical cheesemaker of twenty-five years' experience, and is deeply interested in his work; and I have placed the supervision of the cheese interests entirely in his charge and hold him strictly responsible for the results.

## FILLED CHEESE SEIZURES.

From Wood Bros., Minneapolis, seized three boxes filled cheese.  
From E. Piggott & Co., St. Paul, seized ten boxes filled cheese.

## LARD.

I repeat my statement of a former report, in which I said that the lard product is not strictly in accordance with my wishes, partly owing to the meager appropriation set apart for food prosecutions. The law, as it now stands, allows lard that is not strictly pure, and that is composed partly of other fats, such as stearine or cottonseed oil, or both, to be sold on the markets of the state under certain conditions, viz.: that each package shall have firmly affixed upon it a label upon which is printed in letters not less than one-half inch high the words "Lard Compound," or "Adulterated Lard," and immediately following the same, in letters not smaller than long primer, the name and approximate proportions of the several constituents contained in the mixture or compound; and that the dealer shall furnish the purchaser at the time of sale a card upon which is legibly printed the name of the article as hereinbefore defined and a list of the several component parts of the mixture. The above stated conditions being complied with, this article at once knocks at the doors of our markets and demands admission in competition with the legitimate and strictly pure product.

By far the greater portion of the lard placed upon our markets is the product of the packing houses. The farmers, as a rule, sell their hogs on foot, and consequently farmers' lard is a very scarce article; therefore the packers enjoy a monopoly of the lard traffic. Cottonseed oil is also entering into competition with lard, and its influence has been felt by the producers of pure lard. Cottolene, a lard substitute, composed of beef suet and cottonseed oil, is, by a provision in our law, exempted from the provisions governing other lard substitutes, in that it is not required to be branded as a lard substitute, but may be sold under its name, "Cottolene." This product has become very popular as a substitute, and has a very large sale. There are other substitutes on the market of a similar character, but the law does not exempt them from any of its provisions.

## LARD SEIZURES.

From Chas. Larson, Duluth, seized 50 pounds lard compound.  
From Mrs. Johanna Hastrum, Duluth, seized 50 pounds lard compound.  
From Ed. Dornedy, Duluth, seized broken package lard compound.

## PROSECUTIONS.

State vs. J. Wilkey, Duluth; sold compound lard; case dismissed.

State vs. Duluth Cash Grocery; sold compound lard; plead guilty; fined

\$25.

State vs. Yerxa Bros. & Co., Minneapolis; sold adulterated lard; guilty; fined \$25.

## VINEGAR.

The vinegar supply of this state has probably received more attention at the hands of this department than any other article under our supervision, except, perhaps, the item of milk, simply for the reason that the temptation is too great for the unprincipled manufacturers to resist tampering with it, and it requires constant vigilance on our part to keep the product in a reasonably satisfactory condition. Our law requires that all vinegar shall have an acidity equivalent to the presence of not less than four and one-half per cent by weight of absolute acetic acid; and in case of cider vinegar shall contain, in addition, not less than two per cent by weight of cider vinegar solids, and if any vinegar contains any artificial coloring matter, or less than the above acidity, or, in the case of cider vinegar, if it contains less than the above amount of acidity or of cider vinegar solids, it shall be deemed to be adulterated. The above is the standard to which we are trying to bring our vinegar supply up to, and have succeeded as a rule; but we have had to contend with some small lots that are not only illegal, but vile. The Alden Vinegar Company of St. Louis, Mo., has a record in this state of manufacturing and placing on sale the most fraudulent and spurious goods upon our markets. The Red Cross Vinegar Company, which used to have a good name in this state as a manufacturer of honest goods, seems to have fallen from grace, and the results of our analyses would indicate that they are working after the formula of the Alden company. Since our determined fight against the Alden company, they have practically lost their patronage in this state. Our inspectors have found recently some small lots of their goods in remote portions of the state, but it is a very rare occurrence that any is found in the cities or larger towns. Below are a few of the results of the analyses of the Alden goods:

No. of sample, P. M. A.—2:

Specific gravity, 60° Fahrenheit.....	1.007
Acetic acid, by weight.....	3.26
With lead acetate. No precipitation; cloudy.	
With barium nitrate. No precipitation.	
With silver nitrate. No precipitation.	
A colored low wine vinegar; low in acid. Illegal.	

E. N. EATON, Chemist.



The above sample was branded "Fruit Wine Vinegar, 45 grs., Alden & Co., St. Louis, Mo.," and instead of being 45 grains in strength, it tested only 32.6 grains and solids to the amount of .97 of .01 per cent.

No. of sample, P. M. A.—3:	
Specific gravity, 60° Fahrenheit.....	1.008
Acetic acid, by weight.....	3.20
Solid residue.....	1.00
With lead acetate. No precipitation; cloudy.	
With barium nitrate. No precipitation.	
With silver nitrate. No precipitation.	
With ammonium oxalate. Slight precipitation.	
Colored low wine vinegar; low in acid and solids. Misrepresented.	
E. N. EATON, Chemist.	

The above was sold as a pure cider vinegar and branded as such. The brand on the barrel was "Red A, Alden & Co., St. Louis, Mo., 45 grs." It tested only 32 grains and 1.00 per cent of solids.

The above are fair samples of the "Alden" vinegar. They are invariably low in acidity, and are a low wine as a rule, colored and flavored to suit the fancy of their manufacturers, and placed on the market under fancy names, such as "Grape Wine Vinegar," "Pure Fruit Vinegar," "West India Special Vinegar," etc., in order to deceive the public. We have taken samples of their goods, and upon our chemist's return of the analysis we notify the merchant from whom the sample is taken, who in turn notifies the "Alden Co.," and the following is about the style their replies are couched in:

OFFICE OF THE ALDEN VINEGAR COMPANY,  
1001 NORTH LEVEE.

St. Louis, March —, 189—.

.....Esq.,

.....Minn.

Dear Sir: We have your letter of the 8th inst. Do not be disturbed about that fine vinegar. It is as pure as God's sunlight, as you can see by the pink circular herein inclosed.

As to the strength, we have been here for twenty-six years with practical unlimited capital and large works, and we do not believe that anything stronger can be produced from pure cider and wine and be a safe vinegar to use.

The fact is, we have to make, bill, and brand our vinegar under the Missouri state law, and that is the law that governs us.

We would suggest that you go ahead and use the vinegar with confidence, and we will protect you. We will not ask you for any money until you are thoroughly satisfied, and let the result justify you. Your future order solicited.

When you need more vinegar do not fail to write us. The "Alden" is the best, and those who handle it exclusively sell the most and get the best trade. We have been here for twenty-six years and know it to be so.

We have this day given our bookkeeper instructions to make new terms on your bill, one-third of a year from date, and we hope that will be satisfactory.

Yours truly,

ALDEN VINEGAR CO.



The case of the Alden company in their letter is similar to that of the man telling an unreasonable story, which he could prove by Bill Johnson if he was alive. The quality of their goods are vouched for by the "pink circular" sent out, and the strength is undisputable, owing to having been in business twenty-six years with unlimited capital; and they cheerfully extend the time of payment because the merchant refused to pay for it at all. With this description of the Alden company's goods we will turn them over to the tender mercies of the public. There are many brands of good vinegar on sale upon our markets. Among those made outside our state may be found: F. C. Johnson's; H. J. Heinz & Co.; Amazon; Barrett & Barrett; Clarksville, etc. Those made in the state: M. A. Gedney & Sons; Northwestern; F. H. Spink & Co.; New Ulm Vinegar Co. The largest of these is the M. A. Gedney works. As may be seen by our chemist's report, their vinegar is the most uniform of any we encounter. The company are proud of their plant, and use every effort to place a good article upon the market, and we are pleased to recognize their efforts in this direction. Their plant is located in Minneapolis, and is a purely home institution, equipped with all modern improvements. This fact makes us feel a friendly interest in them, and a desire to see them place none but legal goods upon the market. Barrett & Barrett put out a very fine grade of goods, but their plant is outside of the state. As I have previously stated, it is to the interest of the merchants to buy goods made within the state; then, if the goods are not right, they will have recourse upon the manufacturers. Otherwise they will be held responsible by this department, and the merchants will have to take their chances on recovering from the manufacturers, who have the advantage of being beyond their jurisdiction.

### BAKING POWDER.

Regarding baking powders, the law regulating the sale of the same has been in force for about eight years, and the results attending its enforcement have been very satisfactory to this department.

The law requiring alum powders to be so branded has been pretty generally complied with. We have been compelled to resort to the law on a number of occasions in order to more firmly impress upon the minds of some unprincipled or unscrupulous vendors that laws were made to be obeyed. And now the merchants, as well as the general public, are pretty well informed on the law governing this commodity.

Before the enactment of the law requiring that all baking powders containing alum should be plainly marked "this baking pow-

der contains alum," pure and honest baking powders were brought into competition with the adulterated goods, and many were deceived thereby; as all powders were warranted pure, and the purchasers not being chemists were none the wiser. But now things have changed, and goods of this character are sold on their merits, and every one knows just what he is buying. While the law does not forbid the sale of alum powders, it does demand that all baking powders shall be sold under their true character for what they really are.

The great bulk of alum powders, as will be seen by the following table, are manufactured in Chicago, New York, Cincinnati, Cleveland, and other Eastern cities. There are, however, a few made in Minnesota. These latter are of rather better quality than those shipped here. There are comparatively few pure cream of tartar powders on sale, compared with the bulk of cheaper powders. Not more than two or three cream of tartar powders are made in Minnesota, and those in small quantities, with the exception of the "Snow Flake," which seems to be the standard powder. This powder is made in St. Paul, and loyalty to home industry demands its recognition. I favor a law requiring the manufacturers to place the formula of their powders upon the label of each can, and making a heavy penalty for a false statement. This, in my opinion, would make it much easier for the consumer to decide on the merits of the respective powders.

## CREAM OF TARTAR BAKING POWDER.

Brand.	Manufacturer.	Location.
Snow Flake.....	C. R. Groff & Co.....	St. Paul.
May Flower .....	Deland & Co.....	Fairport, N. Y.
Fruit .....		
Deland & Co. (chemical)...	Deland & Co.....	Fairport, N. Y.
Star Crystal .....	J. G. Flint.....	Milwaukee, Wis.
Cream Tartar .....	Reid, Murdock & Co.....	Chicago.
Yerxa's Extra .....	Yerxa Bros.....	St. Paul.
Pure Food .....	James Pittway Co.....	Chicago.
Royal .....	Royal Baking Powder Co.....	
Price's .....	Price's Baking Powder Co.....	
Reid, Murdock & Co.....	Reid, Murdock & Co.....	Chicago.
Ideal .....	Bredison & Johnson .....	Duluth.
Pride of Superior.....	Mrs. Evans .....	Superior, Wis.

## PHOSPHATE BAKING POWDER.

Brand.	Manufacturer.	Location.
Snow Ball.....		
Horsford's.....	Prof. Horsford.....	
National Bak. Pow. Co.....	National Baking Powd. Co...	Chicago, Ill.

## LIST OF ALUM BAKING POWDERS.

Brand.	Manufacturer.	Location.
Atlas.....	Reed, Murdock & Fisher....	Chicago, Ill.
A. and P.....	Atlantic & Pacific Tea Co..	New York.
American.....	Geo. P. Vosbrink.....	Chicago, Ill.
Austin's Choice.....	J. G. Flint.....	Milwaukee, Wis.
Allison's.....	Allison Manufacturing Co..	Janesville, Wis.
A. K.....	Anthony Kelly.....	Minneapolis, Minn.
Active.....	Bell, Conrad & Co.....	Chicago, Ill.
American Tea Co.'s Prize..	American Tea Co.....	Minneapolis.
Angite.....	.....	.....
Bon-Bon.....	J. C. Grant Baking Powd. Co.	Chicago, Ill.
Berkey's True.....	Berkey, Tallmadge & Co....	St. Paul, Minn.
Big Can.....	Condell Manufacturing Co..	St. Louis, Mo.
Big Bonanza.....	Allen, Moon & Co.....	St. Paul, Minn.
Brookman's.....	Brookman Baking Powd. Co.	Chicago, Ill.
Big Boom.....	E. J. Cotz & Co.....	St. Louis, Mo.
Boston Baking Powder.....	Boston Baking Powder Co..	Fairport, N. Y.
Badger.....	La Crosse Spice Mill.....	La Crosse, Wis.
Bengal.....	Bengal Baking Powder Co..	St. Paul, Minn.
Best Value.....	.....	.....
Big Dime.....	.....	.....
Century.....	Bell, Conrad & Co.....	Chicago, Ill.
Crystal.....	A. B. Gates & Co.....	Indianapolis, Ind.
Cream Puff.....	French, Palmer & French...	Rochester, N. Y.
Corliss Baking Powder.....	Corliss Baking Powder Co..	Cincinnati, Ohio.
City Mills.....	Kent & Brady.....	St. Paul, Minn.
Chicago Yeast Powder.....	Chapman & Smith.....	Chicago, Ill.
China.....	China Baking Powder Co..	St. Paul, Minn.
Chicago XXX.....	H. C. Fisher & Co.....	Chicago, Ill.
Cook's Choice.....	D. W. Payne & Co.....	Minneapolis, Minn.
Crystal.....	Phoenix Baking Powder Co..	.....
China Tea House.....	China Tea House.....	St. Paul, Minn.
Cottage.....	Arctic Cracker & Spice Co..	Minneapolis.
Challenge.....	Sherman Bros.....	Chicago, Ill.
Columbia.....	Columbia Baking Powd. Co..	St. Paul, Minn.
Capital.....	Ohio Coffee & Spice Co....	Columbus, Ohio.
Capitol.....	Dunham & Johnson.....	Minneapolis, Minn.
Campbell's Baking Powder	Potter-Postin Co.....	N. Y. and Cincinnati.
Cook's Own.....	Brennan Bros.....	Chicago, Ill.
Creamery.....	C. R. Groff.....	St. Paul, Minn.
Calumet.....	Calumet Baking Powder Co.	Chicago, Ill.
Crown.....	J. P. Deter.....	Chillicothe, Ohio.
Coin.....	B. J. Musser & Co.....	Chicago, Ill.
Crystal.....	Crystal Baking Powder Co..	Chicago, Ill.
Cream Loaf.....	Smith & Coote.....	Duluth, Minn.
Daisy.....	Yanz, Griggs & Howes....	St. Paul, Minn.
Diamond.....	Davis & Preston.....	Minneapolis, Minn.
Diamond Crystal.....	Pioneer Tea & Coffee Co....	St. Paul, Minn.
Drady's.....	Drady.....	Moorhead, Minn.
Domestic.....	Domestic Bak. Pow. Co....	Cincinnati, Ohio.
Dr. Pierce's.....	Phoenix Bak. Pow. Co.....	Chicago, Ill.
Dew Drop.....	Arctic Cracker & Spice Co..	Minneapolis, Minn.
Diamond.....	Diamond Bak. Pow. Co.....	Chicago, Ill.
Every Day.....	Bengal Coffee & Spice Co....	Chicago, Ill.
Eddy's Baking Powder.....	Eddy & Eddy.....	St. Louis, Mo.
Eddy's Reliable.....	Eddy & Eddy.....	St. Louis, Mo.
Excelsior.....	.....	.....
Electric Light.....	John N. Longenbach.....	Dorchester, Iowa.
Electric Light.....	M. A. Shirk.....	Mankato, Minn.



LIST OF ALUM BAKING POWDERS.—*Continued.*

Brand.	Manufacturer.	Location.
Eastlake.....	Minn. Coffee & Spice Mills..	St. Paul, Minn.
Empire.....	Craig Bak. Pow. Co.....	Cleveland, Ohio.
Echo.....	Spencer & Co.....	Chicago, Ill.
Echo.....	Sherman Bros.....	Chicago, Ill.
Empire.....	Empire Coffee & Spice Co..	Minneapolis, Minn.
Empire.....	McCarthy, Cornelius & Co..	St. Paul, Minn.
Eddy's Great Bargain.....	Eddy & Eddy.....	St. Louis, Mo.
Empire Silver Spoon.....	Empire Coffee & Spice Mills.	Milwaukee, Wis.
Eclipse.....	Zipp & Scherndorf.....	Cleveland, Ohio.
Eclipse.....	P. H. Kelly & Co.....	St. Paul, Minn.
Farina.....	New Process Bak. Pow. Co.	New York.
Front Rank.....	F. J. Holmquist & Co.....	Minneapolis, Minn.
Fidelity.....	Sherman Bros.....	Chicago, Ill.
Fidelity Yeast.....	Sherman Bros.....	Chicago, Ill.
Forest City.....	Vonwie Bros.....	Cleveland, Ohio.
Gates Baking Powder.....	Gates Bak. Pow. Co.....	Indianapolis, Ind.
Gates No. 1.....	A. B. Gates & Co.....	Indianapolis, Ind.
Golden Rule.....	Bell, Conrad & Co.....	Chicago, Ill.
Golden Rod.....	Boston Bak. Pow. Co.....	Chicago, Ill.
Gold Medal.....	Phoenix Bak. Pow. Co.....	Chicago, Ill.
Gold Dragon.....	Dean Bros & Lincoln.....	Chicago, Ill.
Good as Gold.....	Ransom Bros.....	Albert Lea, Minn.
Goblet.....	Creelman & Avery.....	St. Paul, Minn.
Globe.....	Langum & Payne.....	Minneapolis, Minn.
Government.....	Columbia Bak. Pow. Co.....	St. Paul, Minn.
Government.....	Government Baking Pow. Co	St. Paul, Minn.
Golden Rod.....	Dwinnell, Hayward & Co...	Boston, Mass.
Gaylord.....	Crystal Baking Powder Co..	Chicago, Ill.
Gold Coin.....	Williams & Co.....	Independence, Ohio.
Griswold Big T.....		
Gold Coin.....	Ransom Bros. & Co.....	
Grand Union.....	Grand Union Tea Co.....	
Harries.....	Harris Baking Powder Co..	Minneapolis, Minn.
Hard Pan.....	Chase & Pratt.....	Minneapolis, Minn.
Hatchet.....	W. M. Hoyt.....	Chicago, Ill.
Henkel's.....	Henkel Bros.....	Paterson, N. J.
Hotel.....	J. C. Grant.....	Chicago, Ill.
High Test.....	McCarthy & Camp.....	Minneapolis, Minn.
Home.....	Home Baking Powder Co...	St. Paul, Minn.
Hiawatha.....	Wells-Stone Mer. Co.....	Duluth, Minn.
Harvest Home.....		
Honrobin & Palmer.....	Honrobin & Palmer.....	Austin, Minn.
Ivory.....	Coronet Coffee & Spice Co..	Chillicothe, Ohio.
Joe W Langen Bak. Pow..	Jos. W. Langen.....	Dorchester, Iowa.
Jumbo.....	J. H. Allen.....	St. Paul, Minn.
Jaxon.....	Peninsular Mills.....	Jackson, Mich.
Kenton.....	Potter, Parlin & Co.....	Cincinnati, Ohio.
K. C.....	F. F. Jaques.....	Kansas City, Mo.
Keeler's.....		
Liberty.....	J. F. Wolf & Co.....	Pittsburg, Pa.
Lion.....	David Garrick & Co.....	Philadelphia, Pa.
Lloyd.....		New York.
Lightening.....	Dayton Spice Mills.....	Dayton, Ohio.
Lone Star.....	Lone Star Mufg. Co.....	Minneapolis, Minn.
Loman's Faultless.....	Sprague & Warner.....	Chicago, Ill.
Luxury.....	C. F. Meyer.....	Dayton, Ohio.
Lake Pepin.....		
Lakota.....		
Mammoth.....	Atwood & Steele.....	Chicago, Ill.
Magnolia.....	Magnolia Baking Powder Co	Chicago & St. Louis.



LIST OF ALUM BAKING POWDERS.—*Continued.*

Brand.	Manufacturer.	Location.
Mascot.....	C. F. Ware Coffee Co.....	Dayton, O.
Mrs. Baker's.....	Geo. R. Newell & Co.....	Minneapolis, Minn.
Mason's Pure Cr. Tartar.....	F. H. Mason & Co.....	Quincy, Ill.
Monarch Mills.....	Reed, Murdock & Co.....	Chicago, Ill.
Morning Glory.....	St. Paul Baking Powder Co.	St. Paul, Minn.
Milk Baking Powder.....	W. F. McLaughlin.....	Chicago, Ill.
Morning Lily.....		
Moss Rose.....	F. H. Mason & Co.....	Quincy, Ill.
Merchant Mills.....	Jewett, Sherman & Co.....	Milwaukee.
Minnesota.....	J. Marsen.....	St. Paul, Minn.
Mayflower.....	Younie Bros.....	Cleveland.
Magic.....	P. H. Kelly & Co.....	St. Paul, Minn.
Mascot.....	C. F. Ware Coffee Co.....	
Menu.....		
Milk Foam.....	Superior Coffee & Spice Co.	Superior, Wis.
Morning Lily.....	F. H. Sigrist & Co.....	Duluth, Minn.
New Chicago.....	McNeill & Higgins.....	
National.....	McCormick & Behnke.....	Chicago, Ill.
New Era.....	John Davis & Co.....	New York.
New England.....	Creelman & McCormack.....	St. Paul, Minn.
New Home.....	Mer. Co-operative Chem Co.	Pipetstone, Minn.
New York Tea Co.....	New York Tea Co.....	New York.
North Star.....	North Star Baking Powd. Co.	St. Paul, Minn.
None Such.....	Geo. C. Hanford.....	Syracuse, N. Y.
Our Best.....	John A. Talman & Co.....	Chicago, Ill.
Our Favorite.....	Our Favorite Bak. Powd. Co.	New York.
Our Leader.....	Phoenix Baking Powder Co.	Chicago, Ill.
One Pound.....	Globe Baking Powder Co...	La Crosse, Wis.
O. K.....	Rosewater Bros.....	Cleveland, O.
Old Abe.....	American Soda Co.....	Aurora, Ill.
Old Homestead.....	Kenwood Baking Powd'r Co.	
Our Best.....	Ward & Caldwell.....	
Potter's Best.....	Jewett, Sherman.....	Chicago, Ill.
Pacific Tea Co.....	Kent & Brady.....	
Patapsco.....	Patapsco Baking Powder Co	
Palace.....	Palace Baking Powder Co.	St. Paul, Minn.
Perfection.....	Smith & Chandler.....	Milwaukee, Wis.
Phoenix.....	Phoenix Baking Powder Co.	Chicago, Ill.
Premium.....	Premium Baking Powder Co	New York.
Porter Bros.' Pure.....	Rosewater Bros.....	Cleveland, O.
Postal.....	Spencer Bluing Paddle Co.	Chicago, Ill.
Policy.....	H. C. Fisher.....	Chicago, Ill.
Putnam's Superior.....	Wells, Putnam & Co.....	
Puritan.....	Puritan Baking Powder Co.	Cleveland, Ohio.
Puhl Prize Powder.....	Puhl & Webb.....	Chicago, Ill.
Purity.....	Home Baking Powder Co.	St. Paul, Minn.
Pure Baking Powder.....	Burton Baking Powder Co.	Fairport, N. Y.
Primrose.....	F. McVeigh.....	
Perfection.....	Seristad & Hougan.....	La Crosse, Wis.
Puhl's Sweet Biscuit.....	Puhl & Webb.....	Chicago, Ill.
Red Cross.....	Ricker, Crombie & Co.....	Milwaukee, Wis.
Rising Sun.....	Phoenix Chemical Co.....	Chicago, Ill.
Rival.....	Twohy Bros. Mercantile Co.	West Superior, Wis.
Riverside Mills.....	Creelman, Avery & Co.....	St. Paul, Minn.
Riverside.....	Berkey, Tallmadge & Co.....	St. Paul, Minn.
Red Star.....	Rodney-Peckham.....	Milwaukee, Wis.
Regane's Best.....		
Rinkel's Best.....	E. W. Gillett.....	Chicago, Ill.
Solar.....	Shurman Bros.....	Chicago, Ill.
Silver Standard.....		Chicago, Ill.

LIST OF ALUM BAKING POWDERS.—*Continued.*

Brand.	Manufacturer.	Location.
Special.....	Dean Bros. & Lincoln.....	Minneapolis, Minn.
Standard.....	Globe Coffee & Spice Co.....	Minneapolis, Minn.
Sunflower.....	J. M. Fahnestock.....	Minneapolis, Minn.
Snow Drift.....	Woolson Spice Co.....	Toledo, Ohio.
Seifert's.....	P. H. Kelly Mercantile Co.....	St. Paul, Minn.
Sun.....	Chemical Co.....	Minneapolis, Minn.
St. Paul.....	Kent & Brady.....	St. Paul, Minn.
Sovereign.....	Sovereign Baking Powd'r Co.....	New York.
Spar.....	Spar Baking Powder Co.....	Chicago, Ill.
Safe and Reliable.....	Granger & Co.....	Buffalo, N. Y.
State.....	Stuart & Snyder.....	Cleveland, Ohio.
Silver Star.....	E. Canby.....	Dayton, Ohio.
Silver Spoon.....	Arctic Spice Co.....	Minneapolis, Minn.
Susag's Best.....	Susag Bros.....	Minneapolis, Minn.
Snow Ball.....	Bengal Coffee Co.....	St. Paul, Minn.
Silver King.....	Shaw & Thomas.....	New York.
Sweet Home.....	C. H. Blitchfeldt.....	Minneapolis, Minn.
Superior.....	O. Burke.....	St. Paul, Minn.
Spot Cash.....	J. C. Grant.....	Chicago, Ill.
Sun.....	Rosewater Bros.....	Cleveland, Ohio.
Swea.....	Rosewater Bros.....	Cleveland, Ohio.
Sweet Biscuit.....	Puhl & Webb.....	Chicago, Ill.
Schmidt's Favorite.....	Rosewater Bros.....	Cleveland, Ohio.
The Model.....	Kountz & Co.....	Faribault, Minn.
Town Talk.....	.....	.....
Triumph.....	Harrison, Farrington & Co.....	Minneapolis, Minn.
The Legal.....	Rosewater Bros.....	Cleveland, Ohio.
Twin City.....	J. K. Ferguson.....	Minneapolis, Minn.
Taylor' Double Straight.....	Taylor Manufacturing Co.....	St. Louis, Mo.
Union.....	Union Baking Powder Co.....	New York.
Union Star.....	Steele, Wedeles & Co.....	Chicago, Ill.
Underwood's.....	Thos. Wood & Co.....	Boston, Mass.
Unrivald.....	Sprague, Warner & Co.....	Chicago, Ill.
Union.....	Woolson Spice Co.....	Toledo, Ohio.
Vienna.....	Consolidated Spice Co.....	Omaha, Neb.
Victor.....	Reid, Murdock & Co.....	Chicago, Ill.
Virginia Baking Powder.....	.....	.....
Vienna Pure Cream.....	.....	.....
Vienna.....	Ozone Baking Powder Co.....	.....
Waseca.....	C. & C. Kirkpatrick.....	Waseca, Minn.
West.....	Jas. McIntosh & Co.....	Minneapolis, Minn.
Western Pearl.....	Western Pearl Co.....	Chicago, Ill.
Western Prince.....	Western Pearl Co.....	Chicago, Ill.
West Hotel.....	McCarthy & Camp.....	Minneapolis, Minn.
Western.....	Jas. McIntosh & Co.....	Minneapolis, Minn.
White Rose.....	Geo. S. Freaney.....	Wheeling, W. Va.
White Rose.....	Chase & Pratt.....	Minneapolis, Minn.
White Lily.....	White Lily Baking Powd. Co.....	St. Paul, Minn.
White Cross.....	J. Schneider & Co.....	Cleveland, Ohio.
Wisconsin.....	Ricker, Crombie & McLean.....	La Crosse, Wis.
Windsor.....	A. C. Whiteman.....	Jackson, Minn.
Yankee Baking Powder.....	Yankee Baking Powder Co.....	New York.
Yeast Powder.....	Chapman, Smith & Co.....	Milwaukee, Wis.
Yale.....	.....	.....
Zipp's Grape.....	Zipp & Schromdorser.....	Cleveland, Ohio.
Zephyr.....	Kenwood Baking Powd'r Co.....	.....
Windsor.....	Edwin W. Gillis.....	New York.

## HONEY.

This article of the dietary which is so generally known for its pleasant saccharine qualities, has received but a limited amount of attention from the commission. Not because honey was considered by this department above suspicion of being adulterated, but owing to the fact that it did not come within the jurisdiction of our law.

Our state furnishes an excellent article of honey, and a goodly number are engaged in the business of bee-keeping. Another matter in this connection is well worthy of notice; a large amount of capital has within a few years been invested in apiaries.

While we recognize the worth of the pure Minnesota product, yet there is much honey on the market that is spurious and adulterated. This evil is on the increase, and to-day it is a serious problem which confronts the men who desire to produce a pure article of honey. It is therefore a matter for our serious consideration, and in order that this important industry may receive a stimulus, it is incumbent upon the legislature to enact laws that will afford it the necessary protection and encouragement its importance demands. In all matters of food we cannot exercise too great care in denouncing the spurious and encouraging the genuine.

The legislature of 1893 enacted a honey law with penalties provided for its violation. Several other states have a similar law, and until after the passage of this law, Minnesota was to a certain extent a dumping ground for the spurious article. But since that time the market has been in a very good condition. The most of the spurious honey found upon our markets comes from California, though some has been manufactured in St. Paul and Minneapolis, where the strained honey was mixed with glucose and placed on sale as strictly pure goods; but our present law has stopped this traffic.

The following table from the commissioner of statistics will show the growth of the honey industry:

## BEES AND HONEY.

Number of hives, 1893.....	19,605
Number of pounds of honey, 1893.....	324,911

## COMPARATIVE TABLE OF BEES AND HONEY FOR TWENTY-ONE YEARS.

Years.	No. of Hives.	Pounds Honey.
1872 .....	13,704	232,948
1873 .....	10,376	134,276
1874 .....	7,343	99,296
1875 .....	7,134	108,673
1876 .....	7,740	101,858
1877 .....	10,835	213,768
1878 .....	15,105	253,221
1879 .....	16,261	208,018
1880 .....	14,020	221,255
1881 .....	9,287	144,162
1882 .....	9,003	166,999
1883 .....	10,744	254,964
1884 .....	13,418	223,943
1885 .....	11,948	243,326
1886 .....	14,358	341,047
1887 .....	13,300	210,593
1889 .....	22,159	746,453
1890 .....	20,058	221,333
1891 .....	19,083	331,247
1892 .....	15,495	214,602
1893 .....	19,605	324,911

## HONEY PROSECUTIONS.

State vs. Hellman Bros., Minneapolis; sold adulterated honey; plead guilty and fined \$30.

State vs. F. R. Yerxa & Co., St. Paul; sold adulterated honey; tried in municipal court and case dismissed for want of evidence.

State vs. P. Erdman, Minneapolis; sold adulterated honey; found guilty and fined \$15.

## REPORT OF INSPECTION OF STABLES AND DAIRY COWS,

TRIBUTARY TO THE CITY OF ST. PAUL, DURING FEBRUARY AND MARCH,  
1895.

This work was performed by Assistant Commissioner Graham and Inspector Williams.

Glennan & McGraw, Desnoyer Park.—Twenty-six cows; thin, fairly clean; stable fair; ventilation poor; feeds bran, shorts, and wild hay; spring water.

Nodell & Son, St. Paul.—Thirty-nine cows, in good, clean condition; barn and ventilation good; feeds wheat screenings and wild hay; spring water.

..... Nodell, near river.—Thirteen cows, rough, dirty, in poor condition; no ventilation; spring water.

Alexander & Shepherd, St. Anthony Ave.—Twenty-eight cows, in good and fairly clean condition; barn good; ventilation fair; feeds bran, shorts, oil meal, wild hay; spring water.

Peter Peterson, St. Anthony Ave.—Nine cows, fair condition, fairly clean; barn poor, no ventilation; feeds cockle, bran, wild hay; spring water.

J. M. Booth, Merriam Park.—Sixteen cows, in good, clean condition; barn and ventilation good; feeds mill feed and wild hay; well water.



C. Foelsten, St. Clair St. and Prior Ave.—Three cows in fair condition; barn good; no ventilation; feeds bran, cockle, and wild hay; well water.

O. Gessell, Fairview Ave.—Nine cows, good flesh but dirty; barn good; ventilation fair; feeds malt, cockle; well water.

Wm. Wessinger, Fairview Ave.—Fifteen cows, in good, fairly clean condition; barn good; ventilation poor; feeds bran, cockle and timothy; well water.

Wm. Lixmun, Hartford Ave.—Eighty cows, in good flesh but dirty; barn and ventilation poor; feeds bran, shorts and red top hay; well water.

Gus Schmidt, Otto Ave.—Twenty-one cows, in good flesh but dirty; barn and ventilation good; feeds malt, shorts, bran and wild hay; well water.

M. J. Dunn, Otto Ave.—Fourteen cows, in good flesh but filthy condition; barn bad and filthy; feeds malt and hay; spring water.

Gus Petersoon, Otto Ave.—Fourteen cows, in good flesh but dirty; barn fair; ventilation good; feeds bran, cockle and wild hay; well water.

John Peterson, Cleveland Ave.—Twenty-eight cows, fair flesh, dirty condition; barn and ventilation good; feeds shorts and wild hay; well water.

D. J. Luby, Montreal Ave.—Nineteen cows, in good, fairly clean condition; barn and ventilation good; feeds bran, shorts and wild hay; well water.

Bragg Bros., Montreal Ave.—Fifty-three cows, in good, fairly clean condition; barn and ventilation good; feed bran, corn meal and wild hay; well water.

Mooney Bros., Montreal Ave.—Twenty-five cows, in good, fairly clean condition; barn extra good; ventilation good; feeds bran, shorts and tame hay; well water.

P. J. Keough, Hamline Ave.—Fifty cows in good, fairly clean condition; barn and ventilation good; feeds ground wheat, wild hay; well water.

C. C. Sattlers, Hamline Ave.—Twenty-five cows in good, clean condition; barn extra good; ventilation fair; feeds malt and flour; well water.

Frank Hall, 1149 Randolph St.—Eight cows in good, fairly clean condition; barn good; ventilation fair; feeds shorts, bran, tame hay; well water.

C. W. French, St. Clair St.—Forty cows in extra good, extra clean condition; barn and ventilation good; feeds bran, shorts, meal and hay; spring water.

John Bayliss & Sons, 1480 Fairmont Ave.—Twenty-four cows in good, fairly clean condition; barn and ventilation good; feed bran, shorts and cockle; well water.

H. Corentzon, St. Clair St.—Two cows, in good flesh but very dirty; barn and ventilation good; feeds malt, bran, vinegar waste; well water.

John Johnson, 1174 Grand Ave.—Twenty-six cows, extra good and clean; barn and ventilation good; feeds bran, flour, meal and wild hay; well water.

Gus Edlund, 1270 Lincoln Ave.—Four cows, extra good and clean; barn and ventilation good; feeds bran flour and hay; well water.

J. A. Johnson, 1143 Lincoln Ave.—Ten cows, in good, clean condition; barn and ventilation good; feeds bran, flour and ground feed; well water.

Harold Hansen, 1128 Grand Ave.—Three cows, in good, fairly clean condition; barn and ventilation good; feeds bran, ground feed and tame hay; well water.

P. John, 1132 Selby Ave.—Five cows, in good, clean condition; barn and ventilation good; feeds shorts, bran and hay; city water.

McMenemy Bros., 413 Lexington Ave.—Fifty cows, in good, fairly clean condition; barn good; ventilation fair; feed flour, bran and hay; well water.

J. B. Paquette, St. Anthony Ave.—Thirteen cows, in good, clean condition; barn good; no ventilation; feeds bran, shorts, cockle and clover; well and pond water.

J. Robertson, near Como.—Six cows in good, clean condition; barn and ventilation good; feeds ground feed and tame hay; well water.

S. Stray, near Como.—Sixteen cows, in fair flesh, but dirty; barn and ventilation good; feeds bran, flour and wild hay; spring water.

John W. Jackson, Phalen St.—Fifty-five cows, in good, clean condition; barn and ventilation good; feeds shorts, cockle and wild hay; spring water.

F. Strobel, St. Paul.—Sixteen cows, in good, fairly clean condition; barn and ventilation fair; feeds bran, shorts and wild hay; well water.

Fred Obi, St. Paul.—Twelve cows, in good condition, but dirty; barn fair; ventilation poor; feeds flour, malt, wild hay; well water.

Heichner Bros., Maryland St.—Forty cows, in good, fairly clean condition; barn good; ventilation fair; feeds malt, bran, wild hay; well water.

Gus Baitke, St. Albans St.—Twenty cows, in fairly clean condition; barn and ventilation fair; feeds bran, shorts and timothy hay; well water.

John Bergman, Dale St.—Twenty-seven cows, in good, and fairly clean condition; barn and ventilation poor; feeds flour, bran and hay; well water. and ventilation good; feeds bran, flour and hay; well water.

Chas. Schauno, Dale St.—Twenty-one cows, in fair and fairly clean condition; barn good; no ventilation; feeds screenings and wild hay; well water. C. Bell.—McCarron Lake.—Twelve cows, in good flesh, but dirty; barn and ventilation good; feeds shorts, bran and timothy hay; well water.

Chas. McCarron, McCarron Lake.—Thirty cows, in good, fairly clean condition; barn and ventilation good; feeds bran, shorts and millet; well water.

Frank Tschida, near Rice St.—Fifteen cows, in good condition, but dirty; barn and ventilation fair; feeds bran, shorts and hay; well water.

H. Schroeder, Rice St.—Seventy cows, in extra good and extra clean condition, barn and ventilation extra good; feeds bran, flour and timothy hay; well water.

Chas. Schon, Rice St.—Eleven cows, in good condition, but dirty; barn and ventilation good; feeds malt, flour, bran and wild hay; well water.

A. Richter, Rice St.—Fifteen cows, in good, clean condition; barn and ventilation good; feeds malt, bran, flour and wild hay; well water.

C. Spangenberg, Rice St.—Fifteen cows, in good condition, but dirty; barn and ventilation fair; feeds flour, bran and wild hay; well water.

J. Bonngaard, Rice St.—Sixteen cows, in thin flesh, and dirty; barn and ventilation good; feeds bran, flour and timothy hay; well water.

Chas. Suberlich, Rice St.—Twenty-nine cows, in good and fairly clean condition; barn and ventilation good; feeds bran, flour and wild hay; well water.

Fred Memdt, Rice St.—Twenty-two cows, in good, clean condition; barn and ventilation good; feeds shorts, bran and timothy hay; well water.

Louis Bearth, Rice St.—Nineteen cows, in extra good, clean condition; barn and ventilation good; feeds middlings, bran and wild hay; well water.

E. Schlozer, 1558 Rice St.—Twenty cows, in extra good and clean condition; barn and ventilation extra good; feeds middlings, bran and timothy; well water.

H. Leaer, Kansas St.—Fifteen cows, in good and fairly clean condition; barn and ventilation poor; feeds shorts, bran and wild hay; well water.

A. Thorn, Woodbridge St.—Twenty-eight cows, thin and dirty; barn good; ventilation poor; feeds malt, shorts and wild hay; well water.

John Bauman, Marion St.—Fifteen cows, thin and dirty; barn fair; ventilation bad; feeds malt, bran, cockle, clover; well water.

John Hollanitsch, Marion St.—Thirteen cows, in good condition, but dirty; barn and ventilation good; feeds bran, shorts and wild hay; spring water.

O. Finsberg, Gaultier St.—Four cows, in extra good condition; barn and ventilation good; feeds bran, shorts and wild hay; well water.

H. Freutel, Phalen Ave.—Thirty cows, in good condition, but dirty; barn and ventilation good; feeds malt, middlings and tame hay; well water.

Anton Solar, 364 Cottage St.—Twelve cows in good and fairly clean condition; barn and ventilation good; feeds bran, middlings and wild hay; well water.

A. Mundt, Farrington Ave.—Twenty cows, extra good and clean; barn and ventilation good; feeds malt, bran, shorts and tame hay; well water.

A. Mollett, Farrington Ave.—Thirteen cows, in good and fairly clean condition; barn and ventilation fair; feeds bran, shorts, tame hay; well water.

A. J. Vogel, 1153 Gaultier St.—Sixteen cows, in good, fairly clean condition; barn good; ventilation bad; feeds, malt, bran, shorts; pond water.

M. Schneider, 1109 Woodbridge St.—Eight cows, in good, fairly clean condition; barn and ventilation poor; feeds malt, shorts and tame hay; well water.

Wm. Wentzell, 974 Gaultier St.—Ten cows, in good and fairly clean condition; barn and ventilation poor; feeds flour, bran and timothy hay; well water.

G. W. Peck, Lexington Ave.—Fifty-two cows, in good, fairly clean condition; barn and ventilation good; feeds bran, cockle and hay; well water.

M. Eberhardt, 1681 Shipman St.—Fourteen cows, in extra good condition; barn and ventilation good; feeds bran, shorts and hay; well water.

Johnson & Co., Charles St.—Twelve cows, in good, clean condition; barn poor; ventilation good; feed bran, shorts and wild hay; well water.

N. S. Japsen, 2694, University Ave.—Six cows, in good, clean condition; barn and ventilation good; feeds wheat, screenings, tame hay; well water.

Nelson & Hanson, fair grounds.—Twenty-nine cows, in good, clean condition; barn and ventilation good; feed bran, screenings, meal and wild hay; well water.

Paul Parel, Snelling Ave.—Sixteen cows, in good flesh, but dirty; barn and ventilation fair; feeds, malt, bran and shorts, wild hay; well water.

Frank Maier, Stewart Ave.—Fourteen cows, in fair condition; barn and ventilation bad; feeds, malt, bran and wild hay; river water.

J. Smith, West Seventh St.—Twenty-six cows, in good and fairly clean condition; barn fair; ventilation good; feeds malt, bran, cockle and wild hay; well water.

Fritz Moser, 1999 West Seventh St.—Ten cows, in good flesh, but dirty; barn and ventilation good; feeds bran, shorts and wild hay; well water.

Frank Mayers, 2000 West Seventh St.—Seven cows, in fair, but dirty condition; barn and ventilation very bad; feeds bran and wild hay; well water.

S. Stutzermegger, Stewart Ave.—Fifteen cows, in good, clean condition; barn and ventilation good; feeds malt, shorts and wild hay; well water.

J. E. Suther, West Seventh St.—Twenty-eight cows, in fair condition; barn and ventilation fair; feeds shorts, bran and wild hay; well water.

Mrs. McCue, West Seventh St.—Ten cows, in fair condition; barn and ventilation fair; feeds bran, shorts and timothy hay; well water.

R. Fleugel, Snelling Ave.—Sixteen cows, in good condition; barn and ventilation good; feeds bran, vinegar waste, wild hay; well water.

O. C. Miller, 1225 Burns Ave.—Ten cows, in good, fairly clean condition; barn and ventilation fair; feeds bran, shorts and clover; pond water.

W. E. Kendrick, Knight St.—Eleven cows, in good flesh, but dirty; barn and ventilation poor; feeds bran, shorts and wild hay; spring water.

A. Skelton, Knight St.—Eight cows, in fair condition; barn fair; no ventilation; feeds bran, shorts and hay; well water.

W. H. Pottho, Afton Road.—Twenty-seven cows in extra good and extra clean condition; barn fair; ventilation poor; feeds bran, ground feed and timothy hay; well water.

Geo. Poleries, 870 Butternut St.—Seven cows, in good flesh, but dirty; barn fair; ventilation poor; feeds vinegar waste, malt and wild hay; well water.

John Zinnell, 803 Butternut St.—Five cows, in good and fairly clean condition; barn and ventilation poor; feeds vinegar waste and wild hay; well water.

D. Stippen, 774 Stewart Ave.—Two cows, in good condition; barn and ventilation fair; feeds bran and ground feed; well water.

Frank Unfried, Rosedale Ave.—Eleven cows, in good condition; barn fair; ventilation poor; feeds bran, shorts and wild hay; well water.

Mrs. Seiberlich, Rice St.—Fifteen cows, in good condition; barn extra good; ventilation fair; feeds bran, shorts and hay; well water.

Wm. Doman, Rice St.—Twenty-seven cows, in good condition; barn good; no ventilation; feeds bran, shorts and hay; well water.

Ed Knowlan, Rosetown.—Thirty-four cows, in extra good, clean condition; barn and ventilation extra good; feeds bran, shorts, fodder and hay; well water.

Mat Strautz, Little Canada.—Thirteen cows, in good condition; barn and ventilation extra good; feeds bran and shorts; well water.

Geo. Nadeau, Little Canada.—Ten cows, in good condition; barn and ventilation good; feeds bran, shorts and wild hay; well water.

John Johnson, California St.—Seventeen cows, in good condition; barn and ventilation good; feeds malt, bran, meal and wild hay; pond water.



O. Felthiem, Bradley St.—Twenty-five cows, in extra good, clean condition; barn and ventilation extra good; feeds corn meal, bran and wild hay; well water.

A. J. Peterson, Edgerton St.—Nineteen cows, in good, clean condition; barn good; ventilation poor; feeds screenings, bran and timothy hay; well water.

Nels Peterson, King St.—Nineteen cows, in fair condition; barn fair; ventilation poor; feeds bran, shorts, cockle and wild hay; pond water.

M. J. Claus, Gervais Lake.—Sixteen cows, in good condition; barn and ventilation good; feeds bran, cockle and wild hay; well water.

F. H. Pinska, Lake Gervais.—Forty cows, in fair condition; barn fair; no ventilation; feeds cockle, bran and wild hay; well water.

T. Jorgensen, Edgerton St.—Sixteen cows, in good condition; barn and ventilation good; feeds cockle, bran, meal and wild hay; well water.

W. Lasanski, Como Ave.—Four cows, in good, clean condition; barn and ventilation fair; feeds bran, shorts and wild hay; well water.

Thos. Walder, Mackubin St.—Four cows, in good, fairly clean condition; barn poor; no ventilation; feeds shorts, bran and wild hay; pond water.

C. P. Patterson, St. Anthony Park.—Twenty-four cows, in extra good and clean condition; barn and ventilation good; feeds bran, shorts, fodder and hay; well water.

James McCarthy, 1228 East Fourth St.—Twelve cows, in extra good condition; barn and ventilation fair; feeds mill feed, potatoes and wild hay; pond water.

Robert Johnson, 1229 Francis St.—Twelve cows, in fair condition, but dirty; barn and ventilation bad; feeds malt, bran and wild hay; pond water.

J. W. Nelson, 1596 East Fourth St.—Twenty cows, in good, fairly clean condition; barn and ventilation fair; feeds bran, oil meal, malt and timothy hay; well water.

Hans Johnson, Sigel St.—Twenty cows, in fair condition; barn and ventilation good; feeds bran, shorts and fodder; pond water.

O. Anderson, Francis St.—Six cows, in fair condition; barn and ventilation fair; feeds bran, malt and wild hay; well water.

Peter Matson, 1378 Minnehaha St.—Fifteen cows, in good, fairly clean condition; barn good; feeds malt, bran and corn fodder; well water.

H. Hansen, Reaney St.—Twenty-four cows, in good condition; barn and ventilation extra good; feeds bran, flour and tame hay; well water.

Peterson Bros., 1510 Margaret St.—Seventeen cows, in good, clean condition; barn and ventilation fair; feeds bran, shorts and wild hay; pond water.

H. Morgan, Beech St.—Twelve cows, in good, clean condition; barn and ventilation good; feeds malt, bran and wild hay; pond water.

A. Gustafson, Beech St.—Twelve cows, in good, fairly clean condition; barn and ventilation good; feeds bran, shorts and wild hay; pond water.

John Peterson, 1560 Beech St.—Eleven cows, in good, fairly clean condition; barn fair; feeds shorts, bran, cockle and wild hay; pond water.

Mat Peterson, 1560 Beech St.—Four cows, in fair condition; barn fair; no ventilation; feeds bran, shorts and wild hay; pond water.

Swan Mattson, 1560 Beech St.—Seven cows, in fair flesh, but dirty; good barn; no ventilation; feeds malt, bran and shorts; pond water.

John Lundgaard, 1531 East Fourth St.—Nine cows, in good condition; barn good; ventilation fair; feeds malt, bran and wild hay; well water.

Louis Ebert, Margaret St.—Four cows, in good, fairly clean condition; barn fair; ventilation good; feeds, malt, cabbage, wild hay; pond water.

Chas. Schlichting, East Sereneth St.—Eighteen cows, in good, fairly clean condition; barn good; no ventilation; feeds shorts, bran and wild hay; well water.

W. J. Ahlstrom, Prospect Ave.—Fourteen cows, in good, clean condition; barn good; no ventilation; feeds bran, shorts and wild hay; lake water.

M. Remakel, Phalen Ave.—Twelve cows, in good, clean condition; barn and ventilation good; feeds bran and wild hay; well water.

John Michel, Lake Phalen.—Five cows, in good flesh, but dirty; barn good; no ventilation; feeds bran and wild hay; well water.

John Lindberg, Phalen Ave.—Five cows, in fair condition; barn good; no ventilation; feeds bran, shorts and wild hay; lake water.



O. McMahon, Bock St.—Thirty-two cows, in good and fairly clean condition; barn fair; no ventilation; feeds bran, shorts and wild hay; well water.

Henry Hueffmeier, Stillwater Road.—Thirty-one cows, in good and fairly clean condition; barn and ventilation good; feeds bran, ground oats and hay; well water.

A. A. Anderson, Harvester Works.—Thirteen cows, in good, clean condition; barn good; no ventilation; feeds bran, shorts and tame hay; well water.

J. H. Hill, Stillwater Ave.—Fourteen cows, in good condition; barn good; no ventilation; feeds bran and tame hay; well water.

J. Mentz, 714 Maryland St.—Eight cows, in good, clean condition; barn good; no ventilation; feeds bran and timothy hay; lake water.

M. G. Pinska, 741 Walsh St.—Five cows, in fairly good condition; barn fair; no ventilation; feeds malt, bran and wild hay; city water.

J. Christson, 776 Jessamine St.—Seven cows, in good, clean condition; barn good; no ventilation; feeds bran, cornmeal and wild hay; city water.

O. Nelson, 924 Rose St.—Two cows, in fairly good condition; barn fair; no ventilation; feeds malt, bran and tame hay; well water.

A. Rudeen, 727 Magnolia St.—Six cows, in fairly good condition; barn good; no ventilation; feeds malt, bran and wild hay; pond water.

A. Swanson, 852 Greene St.—Three cows, in good flesh, but dirty; barn poor; no ventilation; feeds bran, shorts and wild hay; lake water.

Frank Johnson, 955 Rose St.—Seven cows, in fairly good condition; barn and ventilation good; feeds bran, cornmeal and wild hay; well water.

C. Gustafson, 957 Rose St.—Nine cows, in fairly good condition; barn and ventilation good; feeds bran, cornmeal and wild hay; well water.

F. J. Sakrison, 968 Maryland St.—Four cows, in fairly good condition; barn and ventilation poor; feeds bran and wild hay; well water.

A. Peterson, 971 Rose St.—Five cows, in good, clean condition; barn good; no ventilation; feeds cornmeal, bran and wild hay; well water.

O. Peterson, Payne Ave.—Eight cows, in good and extra clean condition; barn good; no ventilation; feeds bran, shorts and clover hay; well water.

John T. Johnson, 1457 Edgerton St.—Nine cows, in fair condition; barn good; no ventilation; feeds bran, cornmeal and wild hay; pond water.

Geo. Bodley, Wilton St.—Nine cows, in fair and clean condition; barn good; no ventilation; feeds bran, flour and wild hay; pond water.

G. A. Damberg, 1561 Edgerton St.—Sixty-three cows, in good, clean condition; barn and ventilation good; feeds bran, shorts and tame hay; well water.

G. A. Johnson, Cary St.—Forty cows, in good and clean condition; barn and ventilation good; feeds bran, shorts and tame hay; well water.

H. Klausen, 119 Greenbrier Ave.—Twenty-three cows, in good and clean condition; barn and ventilation good; feeds ground feed, bran and wild hay; well water.

P. Piper, 857 Hartshorn St.—Ten cows, in good and clean condition; barn and ventilation good; feeds malt, bran, shorts and wild hay; well water.

Robert Bryant, Arcade St.—Forty-four cows, in extra good and clean condition; barn and ventilation extra good; feeds bran, ground feed and tame hay; well water.

John B. Little, Lake Phalen.—Ten cows, in fairly good condition; barn fair; no ventilation; feeds ground corn, bran and shorts; lake water.

A. Johnson, Hyson St.—Ten cows, in fairly clean condition; barn fair; no ventilation; feeds malt, bran and wild hay; well water.

J. F. Jackson, Hyson, St.—Thirteen cows, in fairly good condition; barn and ventilation good; feeds bran; cornmeal and wild hay; pond water.

M. Elfinbin, 180 Fenton St.—Three cows, in fair condition; barn fair; no ventilation; feeds bran, shorts and wild hay; well water.

John Scrober, 344 St. Lawrence St.—Three cows, in fair condition; barn fair; no ventilation; feeds bran and wild hay; well water.

A. Gagnier, 328 Florida St.—Thirty-nine cows, in fair condition; barn and ventilation good; feeds vinegar waste, cornmeal and bran; well water.

J. Smith, Florida St.—Ten cows, in fair condition; barn fair; no ventilation; feeds bran, shorts and wild hay; well water.

Tony Smith, Florida St.—Eight cows, in fair condition; barn and ventilation fair; feeds bran, shorts and wild hay; well water.

- F. Frank, Florida St.—Seven cows, in poor, dirty condition; barn fair; no ventilation; feeds bran, shorts and wild hay; well water.
- C. Johnson, West Side Flats.—Seventeen cows, in poor and thin condition; barn fair; no ventilation; feeds bran and wild hay; spring water.
- J. C. Schulze, West Side Flats.—Eleven cows, in good, clean condition; barn and ventilation good; feeds bran and wild hay; spring water.
- Fred Lendeman, West Side Flats.—Five cows, in good, clean condition; barn and ventilation fair; feeds bran; shorts and wild hay; well water.
- A. Royles, West Side Flats.—Five cows, in fair, clean condition; barn fair; no ventilation; feeds shorts, bran and wild hay; spring water.
- A. Seanck, West Side Flats.—Three cows, in fair condition; barn fair; no ventilation; feeds bran, shorts and wild hay; well water.
- Lewis Olenson, West Side Flats.—Nine cows, in good and fairly clean condition; barn fair; no ventilation; feeds shorts, bran and wild hay; well water.
- Chris. Jenson, West Side Flats.—Three cows, in good and clean condition; barn good; no ventilation; feeds bran, flour and wild hay; spring water.
- T. Burnes, 280 Congress St.—Twelve cows, in thin and dirty condition; barn poor; no ventilation; feeds vinegar waste, bran and wild hay; spring water.
- J. Temmerin, West Side.—Nine cows, in good, clean condition; barn good; no ventilation; feeds cornmeal and wild hay; well water.
- Moser Bros., 127 Stickney Ave.—Forty cows, in fairly good and clean condition; barn good, no ventilation; feed corn, bran and wild hay; spring water.
- H. Radant, 125 Annapolis St.—Six cows, in good and clean condition; barn fair; no ventilation; feeds bran, shorts and wild hay; well water.
- John Murray, South Park.—Twelve cows, in extra good and clean condition; barn and ventilation good; feeds corn, bran, flour and wild hay; well water.
- D. F. Wright, South Park.—Twelve cows, in fair flesh, but dirty; barn fair; no ventilation; feeds bran and wild hay; well water.
- Henry Boege, West St. Paul.—Twelve cows, in good, clean condition; barn and ventilation good; feeds shorts, bran and wild hay; well water.
- E. Kraushan, West St. Paul.—Eleven cows, in good, clean condition; barn good; no ventilation; feeds shorts, bran and wild hay; lake water.
- J. Hurley, West St. Paul.—Twenty-seven cows in extra good and clean condition; barn and ventilation good; feeds malt, bran, shorts and wild hay; well water.
- Thos. B. Dixon, West St. Paul.—Fourteen cows, in poor, dirty condition; barn fair; no ventilation; feeds bran, shorts and wild hay; lake water.
- G. W. Menstuff, West St. Paul.—Forty cows, in extra good, clean condition; barn and ventilation good; feeds cornmeal, oil cake and tame hay; well water.
- B. Lethenback, West St. Paul.—Seven cows, in extra good and extra clean condition; barn good; no ventilation; feeds corn, bran and tame hay; well water.
- John Seigfried, South St. Paul.—Twenty-four cows, in good and fairly clean condition; barn good; no ventilation; feeds bran, shorts and wild hay; well water.
- D. Belair, South Park.—Eleven cows, in fair condition; barn good; no ventilation; feeds shorts and wild hay; well water.
- Simon Coe, South St. Paul.—Six cows, in poor and dirty condition; barn dirty; no ventilation; feeds shorts, bran and wild hay; well water.
- Victor Brislaue, South St. Paul.—Five cows, in fair condition; barn fair; no ventilation; feeds bran, flour and wild hay; well water.
- John Uldall, South St. Paul.—Five cows, in good, clean condition; barn good; no ventilation; feeds bran, shorts and wild hay; well water.
- John J. O'Stunsell, South St. Paul.—Eleven cows, in good, clean condition; barn and ventilation good; feeds bran, shorts and wild hay; spring water.
- Mrs. Poole, South St. Paul.—Sixteen cows, in fair flesh, but dirty; barn dirty; no ventilation; feeds, bran, ground wheat and wild hay; well water.
- Mrs. Poole, Second Inspection.—Found barn in better condition and cows fairly clean and gaining in flesh.
- John Oleson, De Soto St.—Thirty-five cows, in good, clean condition; barn and ventilation good; feeds bran, corn and tame hay; well water.

B. Persal, De Soto St.—Sixteen cows, in good, clean condition; barn and ventilation good; feeds cockle, bran and wild hay; well water.

H. Montgomery, 1304 Arkwright St.—Ninety-eight cows, in extra good and clean condition; barn and ventilation good; feeds bran, ground feed and tame hay; well water.

Wm. Schutte, Mississippi St.—Fifteen cows, in good, clean condition; barn and ventilation good; feeds wheat, flour, bran and tame hay; well water.

John Grebowski, Nevada Ave.—Fifteen cows, in fairly good condition; barn and ventilation good; feeds bran, shorts and tame hay; well water.

G. A. Bearth, Olivier St.—Twenty-four cows, in fair and clean condition; barn and ventilation good; feeds bran, shorts and wild hay; well water.

Paul Sprigel, Nebraska Ave.—Eighteen cows, in good, clean condition; barn and ventilation good; feeds cornmeal, bran and tame hay; well water.

J. Gobely, Nevada Ave.—Seventeen cows, in fair and clean condition; barn and ventilation good; feeds bran, shorts and wild hay; well water.

M. Mossong, Fish Hatchery.—Twenty-six cows, in poor and dirty condition; barn fair; no ventilation; feeds bran, shorts and wild hay; spring water.

A. Larson, Burns Ave.—Fourteen cows, in good and fairly clean condition; barn and ventilation fair; feeds bran, shorts and wild hay; spring water.

V. Hampl, Otto Ave.—Nine cows, in fairly clean condition; barn fair; no ventilation; feeds bran, shorts and wild hay; pond water.

A. Swanson, Edgerton St.—Fifteen cows, in fair condition; barn good; ventilation fair; feeds malt, cornmeal and wild hay; pond water.

C. Jacobson, Bradley St.—Twelve cows, in fair condition; barn fair; no ventilation; feeds shorts, bran and wild hay; well water.

## STABLE INSPECTION IN ST. PAUL FOR 1896.

This work was performed by Assistant Commissioner Graham and Inspectors Williams and West.

### DAIRIES.

Fred Hirsig, Little Canada.—Eighteen cows, in good condition; barn and ventilation fair; feeds malt, bran and tame hay; well water.

Lee Pinska, Gervais Lake.—Twenty-seven cows, in fair condition; barn and ventilation good; feeds cornmeal, bran and wild hay; lake water.

E. Schlozer, 155 Rice St.—Twenty-four cows, in good, fairly clean condition; barn clean; ventilation good; well water.

H. Schroeder, North Rice St.—Sixty-eight cows, in good, clean condition; barn extra clean; ventilation good.

Ed Knowlton, 196 Martin St.—Thirty-four cows, in good, clean condition; barn extra clean; ventilation good; well water.

F. Unfried, Rosedale Ave.—Eleven cows, in fair condition; barn fairly clean; ventilation fair; well water.

W. Dohmer, North Rice St.—Twenty cows, in fair flesh; cows not clean; barn in good condition; ventilation poor; well water.

A. Richter, near North Rice St.—Eleven cows, in good, fairly clean condition; barn and ventilation fair; well water; feeds malt.

J. Mollner, near North Rice St.—Twelve cows, in good, fairly clean condition; barn clean; ventilation fair; well water; feeds malt.

J. Bonngard, North Rice St.—Eleven cows, in good, clean condition; barn clean, ventilation poor; well water; feeds malt.

C. Seiberlich, North Rice St.—Twenty-six cows, in good, fairly clean condition; barn and ventilation good; well water; feeds malt.

C. Spangenberg, North Rice St.—Thirteen cows, in good, clean condition; barn clean, ventilation fair; well water; feeds malt.



F. Tschida, North Rice St.—Fourteen cows, in good, clean condition; barn and ventilation fair; well water.

Fred Memdt, North Rice St.—Twenty-four cows, in extra good and clean condition; barn and ventilation good; well water.

Chas. McCarron, McCarron Lake.—Twenty-four cows, in extra good condition; barn and cows extra clean; ventilation good; well water.

L. Bearth, Idaho and Rice Sts.—Eighteen cows, in extra good condition; cows and barn clean; ventilation good; well water.

Anton Soler, Idaho and Rice Sts.—Eleven cows in extra good condition; barn and cows clean; ventilation fair; well water.

J. Nelson, Fair Grounds.—Twenty-eight cows, in extra good condition; barn and cows clean; ventilation good; well water.

Paul Parel, Snelling and Langford Aves.—Thirteen cows, in extra good condition; barn and cows clean; ventilation poor; well water.

Como Park Dairy Farm.—Twenty-nine cows, in extra good condition; barn and cows clean; ventilation extra good; well water.

A. E. Jackson, Como and Phalen Aves.—Twenty-eight cows in extra good condition; stable and cows clean; ventilation extra good; well water.

S. Stray, Como Ave.—Twenty-two cows, in good condition; barn clean; ventilation good; well water; feeds malt.

C. W. Shanno, Phalen Ave. and Kent St.—Twenty-seven cows in extra good condition; barn and cows clean; ventilation good; well water.

J. Bergman, Grotto and Kansas Sts.—Twenty-nine cows, in good and fairly clean condition; barn clean; ventilation fair; well water.

G. Bathke, South and St. Albans Sts.—Twenty cows, in good, fairly clean condition; barn clean; ventilation good; well water.

F. Strobel, South and St. Albans Sts.—Nineteen cows, in extra good, clean condition; barn extra clean; ventilation good; well water.

A. J. Vogel, Mackubin and Carbon Sts.—Sixteen cows, in good, fairly clean condition; barn clean; ventilation fair; well water; feeds malt.

Fred Obi, Mackubin and Carbon Sts.—Sixteen cows, in good, fairly clean condition; barn clean; ventilation fair, well water; feeds malt.

P. O'Brien, Mackubin and Carbon Sts.—Seven cows, in good, fairly clean condition; barn clean; ventilation fair; well water; feeds malt.

Wm. Lasanski, near Piano Factory.—Eight cows, in extra good condition; barn and ventilation fair; well water.

T. Waldock, Mackubin and Front Sts.—Four cows, in good flesh; dirty condition; ventilation poor; well water.

J. Auberle, near Northwestern Fuel Yards.—Five cows, in extra good and clean condition; barn clean; ventilation good; well water.

Johnson & Co., University Ave. and Auburn St.—Twelve cows, in good, fairly clean condition; barn very poor; ventilation good; well water.

John Seigfried, St. Anthony Park.—Twenty-four cows, in fair condition, but dirty; barn and ventilation in fair condition; well water.

D. Belair, South Park.—Twelve cows, in good condition, barn clean; ventilation fair; well water.

Simon Coe, South Park.—Three cows, in good condition; barn clean, ventilation good; well water.

Frank Wright, 264 State St.—Fifteen cows, in fair condition; barn and ventilation fair; well water.

Victor Sormana.—Eight cows, in good condition; barn and ventilation fair; well water.

A. Gagnier, 328 Florida St.—Fifty-two cows, in good condition; barn clean; ventilation fair; well water; feeds vinegar waste.

T. Schmidt, 118 South Robert St.—Fourteen cows, in good, clean condition; barn and ventilation good; well water.

J. Schmidt, 118 South Robert St.—Fourteen cows, in good, clean condition; good barn and ventilation; well water.

Paul Saleva, 118 South Robert St.—Seven cows, in good, clean condition; barn and ventilation good; well and spring water.

E. Wagner, 465½ Robert St.—Sixteen cows, in good, clean condition; barn and ventilation extra good; spring water.



H. Shrimpton, general delivery, Postoffice.—Thirteen cows, in good and clean condition; barn and ventilation good; spring water.

F. Linderman, 180 South Robert St.—Eight cows, in good condition; barn and ventilation good; well water.

A. Pyles, 231 Water St.—Seven cows, in good condition; barn and ventilation fair; well water.

Chas. Schmidt.—Ten cows in good condition; barn and ventilation fair; well water.

F. Voll.—Three cows, in fair condition; barn and ventilation fair; spring water.

Sol. Copeland.—Six cows, in fair condition; barn and ventilation fair; well water.

Mrs. Olson, 229 Water St.—Three cows, in fair condition; barn and ventilation fair; well water.

H. Borge, Annapolis St.—Thirteen cows, in good, clean condition; barn and ventilation extra good; well water.

E. Krosher, 174 Concord St.—Twelve cows, in good condition; barn and ventilation extra good; well water.

B. Lothenback, Oakdale and Annapolis Sts.—Eleven cows, in extra good condition; barn extra good; ventilation good; well water.

H. S. Marthaler, Postoffice Box 289.—Twelve cows, in extra good condition; barn extra clean; ventilation good; well water.

S. R. Dixon, 110 East Winifred St.—Fifteen cows, in fair condition; barn and ventilation fair; pond water.

James Hurley, South Robert and Annapolis Sts.—Twenty cows, in good condition; barn and ventilation extra good; well water.

G. E. Hoffman, Robert and Annapolis Sts.—Seven cows, in good condition; barn and ventilation good; well water; feed; vinegar waste.

M. Cleary, 256 Winona St.—Thirteen cows in fair condition; barn good; ventilation poor; well water.

W. J. Howell, Postoffice Box 450.—Twelve cows, in good condition; barn and ventilation good; well water.

L. Weber, Mendota.—Eleven cows, in good condition; barn and ventilation good; well water; feeds malt.

Nick Welch, 202 West Seventh St.—Thirteen cows, in good condition; barn and ventilation good; well water.

E. Dilgen, 259 West Third St.—Twelve cows, in good condition; barn good; ventilation fair; well water.

B. Griffith, 564 Ohio St.—Six cows, in fair condition, but not clean; barn fair, but not clean; ventilation fair; well water.

McMenemy Bros., 413 Lexington St.—Fifty-six cows, in extra good and clean condition; barn good and clean; ventilation good; well water.

J. B. Paquette, 1461 St. Anthony Ave.—Twenty-one cows, in good condition; barn and ventilation good; well water.

Gust Edlund, 1352 Dayton Ave.—Twelve cows, in good and extra clean condition; barn and ventilation good; well water.

P. J. Holmberg, 1132 Dayton Ave.—Six cows, in good, clean condition; barn and ventilation good; city water.

J. A. Johnson, 1146 Lincoln Ave.—Fifteen cows, in good condition; barn and ventilation good; well water.

John Johnson, 1174 Grand Ave.—Twenty-five cows, in extra good and clean condition; good barn and ventilation; well water.

C. W. French, Hamline.—Forty cows, in good, clean condition; barn and ventilation good; well water.

John Bayliss, Merriam Park.—Twenty cows, in good condition; barn and ventilation good; well water.

Oscar Gersner, Fairview Ave. and St. Clair St.—Twenty cows, in good condition; barn and ventilation good; well water.

C. Feirstein, St. Clair St. and Prior Ave.—Seven cows, in good condition; barn and ventilation good; well water.

T. Breyer, Merriam Park.—Eight cows, in fair condition, and clean; barn good; ventilation fair; well water.

I. N. Booth, Merriam Park.—Eighteen cows, in extra good and clean condition; barn and ventilation extra good; well water.

J. Lautenbach, 1480 Fairmont Ave.—Ten cows, in good condition; barn and ventilation good; well water.

C. C. Sattler, 325 Oneida St.—Twenty-seven cows, in good condition; barn good; ventilation extra good; well water.

P. J. Keough, St. Paul.—Thirty-four cows, in good, clean condition; barn and ventilation good; well water.

Bragg Bros.—Forty cows, in good, clean condition; barn good; ventilation poor; well water.

Mooney Bros., Merriam Park.—Twenty-one cows, in good, clean condition; barn and ventilation good; well water.

M. F. Luby.—Twenty-two cows, in good, clean condition; barn good and clean; ventilation fair; well water.

Gus Peterson.—Twenty cows, in good, clean condition; barn good; ventilation fair; well water.

H. Knoblauch.—Sixteen cows, in good condition; barn good; ventilation poor; well water.

M. J. Dunn, 167 West Third St.—Eleven cows, in good condition; barn good; ventilation fair; spring water.

John Peterson, 751 Laurel Ave.—Twenty-five cows, in good, clean condition; barn in good condition; well water.

H. Zelch, Postoffice Box 359.—Ten cows, in good condition; barn and ventilation good; well water.

Gus Schmidt, 410 Pleasant Ave.—Twenty-four cows, in good condition; barn and ventilation good; well water.

William Rixmun, 1016 James St.—Eight cows, in good condition; barn good; ventilation fair; well water.

Mat Strautz, Little Canada.—Fourteen cows, in good condition, but not clean; condition of barn good; ventilation good; pond water.

A. Fleigel, Fort Snelling.—Fourteen cows, in good condition; barn and ventilation good; well water; feeds malt.

Mrs. Mary McCue, West Seventh St., out.—Nineteen cows, in good condition; barn and ventilation fair; spring water.

John Murray, South St. Paul.—Fourteen cows, in good condition; barn good; ventilation fair.

Albert Bros., South St. Paul.—Thirty-six cows, in good condition; barn and ventilation good; well water.

C. Larson, Lillydale.—Seven cows, in good condition; barn good; ventilation fair; well water.

Edmond Durose, Lillydale.—Six cows, in fair and clean condition; barn good; ventilation fair; well water.

Jacob Pearson, 923 Wayzata St.—Three cows, in good condition; barn good; no ventilation.

C. Haas, 395 Fairfield Ave.—Eleven cows, in good condition; barn and ventilation good; well water.

E. J. Clarkson, 193 West Fairfield Ave.—Twenty-two cows, in good condition; barn and ventilation good; spring water.

John B. Little, Lake Phalen.—Eleven cows, in good condition; barn good; ventilation fair; well water.

P. Hendrickson, Lillydale.—Nineteen cows, in good condition; barn and ventilation good; well water.

N. S. Jepson, 2694 University Ave.—Six cows, in extra good condition; barn and ventilation extra good; well water.

Glennon & McGraw, Desnoyer Park.—Eighteen cows, in good condition; barn and ventilation poor; well water.

Chris Peterson, State Farm.—Twenty-nine cows, in good, extra clean condition; barn and ventilation good; well water.

P. Pearson, Gladstone.—Thirteen cows, in fair condition; barn and ventilation fair; well water.

M. Eberhardt, 1681 Sherburne Ave.—Eighteen cows in good condition; barn and ventilation good; well water.

B. Dickson, Gladstone.—Fourteen cows, in fair condition; barn bad; ventilation poor; lake water.

F. R. Peck, Snelling Ave.—Forty cows, in good condition; barn good; ventilation extra good; well water.

John Mathieson, East Minnehaha St.—Fifteen cows, in good condition; barn fair; ventilation poor; well water.

Peterson Bros., Margaret St.—Sixteen cows, in good condition; barn and ventilation good; lake water.

Louis Benson, Margaret St.—Nire cows, in good condition; barn and ventilation fair; well water.

August Gustafson, Margaret St.—Thirteen cows, in good condition; barn and ventilation fair; well water.

H. Mongan, Margaret St.—Twelve cows, in good condition; barn good; ventilation fair; well water.

S. Mattson, Beech St.—Eight cows, in good condition, though not clean; barn and ventilation fair; lake water; feeds malt.

John Peterson, Beech St.—Twelve cows, in good condition; barn and ventilation good; well water.

M. Person, Beech St.—Four cows, in good condition; barn good; ventilation poor; well water.

John Lundgaard, East Fourth Street.—Seven cows, in good condition; barn and ventilation good; well water.

H. Ebert, East Fourth St.—Seven cows, in good condition, but not clean; barn fair; ventilation poor; well water.

R. Johnson, Francis St.—Eight cows, in good condition; barn and ventilation good; well water.

C. Anderson, Francis St.—Seven cows, in good condition; barn fair; no ventilation; well water.

James McCarty, 1228 East Fourth St.—Twelve cows, in good condition; barn and ventilation good; pond water.

T. Lally, 1172 Euclid Ave.—Eight cows, in good condition; barn good; no ventilation; pond water.

John Roth, 1166 Euclid Ave.—Twelve cows, in good condition; barn good; no ventilation; well water.

John Anderson, 1131 Hudson Ave.—Eleven cows, in good condition; barn good; no ventilation; pond water.

Oscar Larson, 893 Hudson Ave.—Twenty-four cows, in good condition; barn and ventilation good; spring water.

H. Johnson, Burns Ave.—Eighteen cows, in good condition, one lame; barn and ventilation good; spring water.

Mary Anderson, Hastings Road.—Twenty-eight cows, in good condition; good barn; fair ventilation; creek water.

M. Massong, Fish Hatchery.—Thirty cows, in good condition; barn fair; ventilation fair; spring water.

O. C. Miller, 1225 Burns Ave.—Seven cows, in good condition; barn and ventilation good; spring water.

J. H. Mongan, 349 Geranium St.—Eighteen cows, in fair condition; not clean; good barn; no ventilation; spring water.

E. H. Hartfield, 1237 Mississippi St.—Ten cows, in good condition, but dirty; barn good; ventilation fair; spring water.

John Greibowski, Nevada Ave.—Sixteen cows, in good condition; barn and ventilation good; feeds malt; well water.

J. A. Bearth, Olivier St. and Kansas Ave.—Twenty-four cows, in good condition; barn and ventilation good; well water.

Paul Sprigel, Nebraska St.—Eighteen cows, in extra good condition; barn and ventilation good; well water.

John Gobely, Oliver and Nevada Sts.—Seventeen cows, in good condition; barn and ventilation good; well water.

John T. Johnson, 1457 Edgerton St.—Ten cows, in fair condition; barn fair; no ventilation; spring water.

George Bodley, 1400 Edgerton St.—Ten cows, in fair condition; barn good; no ventilation; spring water.



G. A. Damberg, 1561 Edgerton St.—Sixty-four cows, in extra good condition; barn and ventilation extra good; well water.

G. A. Johnson, Cary St.—Forty-three cows, in good condition; barn and ventilation good; well water.

A. E. Swanson, Edgerton St.—Fourteen cows, in good condition; barn and ventilation good; spring water.

J. A. Johnson, Jessie St.—Twenty-four cows, in good condition; barn and ventilation good; spring water.

O. F. Feltheim, Idaho and Bradley Sts.—Thirty-seven cows, in extra good condition; barn and ventilation extra good; well water.

Hugh Montgomery, 1304 Arkwright St.—One hundred and six cows, in good condition; barn extra good; ventilation good; well water.

John Olson, De Soto St.—Thirty-six cows, in good condition; barn good; ventilation extra good; well water.

Charles Bennett, 1236 Burr St.—Seven cows, in good condition; barn good; ventilation fair; city water.

Nels Paulson, 483 Brainerd Ave.—Five cows, in good condition; barn and ventilation good; creek water.

T. Torgerson, 959 Payne Ave.—Eighteen cows, in good condition; barn and ventilation good; well water.

A. J. Peterson, 1247 Edgerton St.—Nineteen cows, in good condition; barn and ventilation good; well water.

Nels T. H. Pederson, 625 Magnolia St.—Eighteen cows, in good condition; barn good; ventilation fair; lake water.

F. H. Pinska, Wabasha St.—Thirty-seven cows, in fair condition; barn and ventilation fair; lake and well water.

N. J. Classon, 825 Payne Ave.—Fourteen cows, in fair condition; barn good; ventilation fair; well and lake water.

Lee Pinska, Wabasha St.—Twenty-seven cows, in fair condition; good barn; fair ventilation; well and lake water.

T. Christianson, 776 Jessamine St.—Ten cows, in good flesh, but dirty; barn and ventilation fair; city water.

George Beatson, 981 Rose St.—Nineteen cows, in good condition; barn good; ventilation fair; well water.

August Peterson, 971 Rose St.—Seven cows; fair condition; not clean; barn and ventilation fair; well water.

C. Gustafson, 957 Rose St.—Ten cows, in fair condition; barn good; ventilation fair; well water.

A. Swanson, 852 Geranium St.—Four cows, in fair condition; barn and ventilation fair; lake water.

Ole Nelson, 924 Rose St.—Nine cows, not in good condition; dirty; barn fair; no ventilation; well water.

M. G. Pinska, Geranium St.—Four cows, in good condition; barn good; no ventilation; city water.

Frank Johnson, 955 Rose St.—Eight cows, in good condition; barn good; ventilation fair; well water.

John Sackrison, 968 Maryland St.—Four cows, in fair condition; barn good; no ventilation; well water.

F. J. Baer, 995 Rose St.—Fifteen cows, in good condition; barn good; ventilation fair; well water.

Sol. Jacobson, 968 Payne Ave.—Nine cows, in fair condition; clean barn; no ventilation; well water.

Fred Hirsig, Little Canada.—Seventeen cows, in fair condition; barn and ventilation good; well water.

Wm. Schutte, 759 Mississippi St.—Sixteen cows, in fair, but not clean condition; barn and ventilation good; well water.

L. A. Strom, 1261 Payne Ave.—Four cows, in fair condition; barn and ventilation fair; pond water.

G. F. Jackson, 712 Hyacinth St.—Fifteen cows, in fair condition; good barn; fair ventilation; lake water.

Otto Johnson, 696 Payne Ave.—Twelve cows, in good condition; barn fair; no ventilation; well water.



G. Peterson, Hyacinth St.—Five cows, in fair condition; barn fair; poor ventilation; well water.

P. Pfeiffer, 857 Hawthorne St.—Eleven cows, in good condition; barn and ventilation fair; well water; feeds malt.

R. Bryant, Arcade St.—Forty-eight cows, in good, clean condition; barn and ventilation good; well water.

Louis Errickson, 682 Courtland St.—Seven cows, in good condition; barn and ventilation good; pond water.

Hans Classon, Cottage St.—Twenty-three cows, in good condition; good barn; fair ventilation; well water.

Ole Peterson, 353 Payne Ave.—Eight cows, in extra good condition; barn and ventilation good; well water.

C. Schlichten, East Seventh St.—Twelve cows, in good condition; barn fair; no ventilation; well water; feeds malt.

J. H. Hill, 1647 Stillwater Ave.—Twelve cows, in fair, but not clean condition; barn and ventilation good; well water.

Nels Allstrom, 1252 East Seventh St.—Sixteen cows, in fair condition; barn and ventilation good; lake water.

O. McMahon, White Bear Road.—Thirty-three cows, in fair, but not clean condition; barn and ventilation fair; well water.

M. Remakel, Lake Phalen.—Thirteen cows, in fair condition; barn and ventilation good; well water.

Andrew Anderson, Jessamine St.—Thirteen cows, in good condition; barn and ventilation good; well water.

P. D. Peterson, 1252 East Seventh St.—Six cows, in good, fairly clean condition; barn and ventilation good; well water.

H. Lauer, Albemarle St.—Sixteen cows, in fair condition; barn fair; ventilation poor; well water.

A. Thom, Woodbridge St.—Twenty-six cows, in good condition; barn good; ventilation fair; well water.

A. Ziebel, Woodbridge St.—Seventeen cows, in good condition; good barn and ventilation; well water.

John Baumen, Marion St.—Thirteen cows, in good condition; barn and ventilation good; well water.

John Hollenatsch, Como.—Thirteen cows, in fair condition; good barn and ventilation; well water.

Henry Freutel, Como.—Twenty cows, in fair condition; barn and ventilation good; well water.

A. Mollett, Cottage St.—Eleven cows, in fair condition; barn and ventilation good; well water.

A. Mund, Farrington Ave.—Sixteen cows, in fair condition; barn and ventilation good; well water; feeds malt.

M. Klein, 1153 Gaultier St.—Fourteen cows, in fair condition; barn and ventilation good; well water.

M. Schneider, 1109 Woodbridge St.—Six cows, in fair condition; barn and ventilation fair; well water; feeds malt.

W. Wedl, 974 Gaultier St.—Ten cows, in good condition; barn fair; no ventilation; well water.

T. Eller, 717 Otto Ave.—Four cows, fair condition, but dirty; stable and ventilation fair; well water.

Mary Polreis, 791 Otto Ave.—Eight cows, in poor condition; barn and ventilation poor; well water; feeds malt.

F. Rothmeier, 763 Butternut St.—Fourteen cows, in fair, but dirty condition; barn and ventilation not good; well water; feeds malt.

Frank Myers.—Twenty-five cows, in good condition; barn and ventilation good; spring water.

J. W. Smith, 997 West Seventh St.—Thirty cows, in good condition; barn and ventilation good; well water.

F. Moser, 444 St. Peter St.—Twelve cows, in fair condition; barn and ventilation good.

Sam Stutzennegger, 251 West Seventh St.—Fifteen cows, in good condition; barn and ventilation good; well water; feeds malt.

V. Hampl, 980 Otto Ave.—Twenty-two cows, in fair condition; barn and ventilation fair; well water.

Jos. Ollig, 950 Otto Ave.—Seven cows, in good condition; barn and ventilation good; well water.

Jos. Eller, 1420 West Seventh St.—Seven cows, in fair condition; barn and ventilation fair; well water; feeds malt.

E. W. Hammermeister, 174 Concord St.—Eleven cows, in fair condition; barn fair; poor ventilation; well water.

Moser Bros., 174 Concord St.—Thirty-six cows, in good condition; barn good; ventilation fair; well water.

H. Hammermeister, 174 Concord St.—Nine cows, in fair condition; good barn; poor ventilation; well water.

John Oslund, South Robert St.—Thirteen cows, in good condition; barn and ventilation good; well water; feeds malt.

Albert Peiper, South Park.—Five cows, in fair condition; barn and ventilation good; spring water.

Mrs. Poole, South Park.—Nineteen cows, in fair condition; barn and ventilation fair; well water.

## FINANCIAL STATEMENT FOR THE YEAR ENDING JULY 31, 1895.

Appropriation for dairy work.....	\$15,000.00
Appropriation for food work.....	3,000.00

## SALARIES.

Berndt Anderson, commissioner.....	\$1,800.00
E. J. Graham, assistant commissioner.....	1,500.00
A. H. Bertram, assistant commissioner and secretary.....	1,500.00
E. N. Eaton, chemist.....	1,200.00
E. B. Williams, inspector.....	1,200.00
C. B. Davis, inspector.....	1,200.00
H. A. Hokemeier, inspector, seven months.....	700.00
G. G. Sanborn, inspector, seven months.....	700.00
C. L. Smith, inspector, six and one-quarter months.....	625.00
J. E. Getman, inspector, six months.....	600.00
P. W. Wildt, inspector, five and three-quarters months.....	573.33
J. M. Bohrer, inspector, five months.....	500.00
A. Snyder, inspector, three months.....	300.00

## EXPENSES.

Traveling expenses.....	1,971.62
Purchases .....	237.55
Postage .....	188.50
Livery and express.....	336.36
Telegrams .....	11.85
Laboratory supplies.....	150.30
Office rent.....	343.75
Gas .....	14.41
Veterinary .....	1.50

Total ..... \$15,654.17

## FINANCIAL STATEMENT FOR THE YEAR ENDING JULY 31, 1896.

Appropriation for dairy work.....	\$15,000.00
Appropriation for food work.....	3,000.00

## SALARIES.

Berndt Anderson, commissioner.....	\$1,800.00
E. J. Graham, assistant commissioner.....	1,500.00
A. H. Bertram, assistant commissioner and secretary.....	1,500.00
E. N. Eaton, chemist.....	1,200.00
E. B. Williams, inspector.....	1,200.00
C. L. Smith, inspector.....	1,200.00
C. B. Davis, inspector.....	1,200.00
J. E. Getman, inspector.....	1,200.00
G. G. Sanborn, inspector.....	1,200.00
A. Snyder, inspector, thirteen and one-third months.....	1,330.00
S. M. West, inspector, eleven months.....	1,100.00

## EXPENSES.

Traveling expenses.....	1,563.88
Purchases .....	197.29
Postage .....	141.65
Laboratory supplies.....	126.05
Livery and express.....	232.17
Telegrams .....	8.96
Gas .....	8.86
Office rent.....	387.50
Court expenses.....	272.84

Total ..... \$17,369.20

## PART II.

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### DAIRY REPORT BY ASSISTANT COMMISSIONER, E. J. GRAHAM.

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To Hon. Berndt Anderson, Dairy and Food Commissioner,

Sir: In submitting to you this my second biennial report, which covers the last two of the four years I have served under you, I shall confine myself entirely to that part of my work pertaining to butter-making, without referring to the part I have taken in the inspection of the city dairies, superintendent of the dairy division at the state fair two years, instructor at the dairy school, as a food inspector, and the part I have taken in the enforcement of our dairy and food laws generally.

This is in accordance with our understanding at the time of my reappointment, that I should have full charge of this branch of our department. So far as matters pertaining to this branch have reached me, I have given them my best attention. I wish, however, later on, to refer to my trip to Washington, D. C., in the interest of our dairymen, having been sent there in response to the urgent request of our congressmen and by the courtesy of Governor Clough and yourself, to assist in the passage of what is known as the filled cheese law.

To begin with, I wish to state that since my connection with this office I have endeavored to do my duty towards our dairymen, whom I represent, in helping to build up our dairy industries on a substantial and paying basis. How far I have succeeded my constituents must judge. That I have gone beyond the imperative demand of the law, there is no question, but there is no lack of precedent for my course, and though I have been bitterly opposed, and grossly misrepresented, I have hewn close to the line, and have no apologies to make. The only just criticism made in regard to me, that I was overzealous, I wish to answer—the end justified the means.



You are aware that our dairymen have had to compete with extensive operators in bogus goods represented and appearing to be genuine. They have also been preyed upon by unscrupulous creamery boomers and supply men. It was on account of these that a demand was made for a department to aid them in fighting the one and avoiding the others. As you know, my principal work has been in answering correspondents, giving them such information as they asked for, gathering statistics, visiting creameries for the purpose of inspection, and instruction when called for, and doing what I could in various ways to make our numerous dairies successful and profitable. We have over 500 creameries in the state, and to give them the proper attention and inspection would require the services of several inspectors. All should be visited at least once during the year, and many of them require several visits annually. The inspector, to do this work satisfactorily, must be an expert in the dairy business, as well as an earnest and faithful worker. The amount appropriated for this purpose is sufficient to warrant the dairymen demanding more attention in this direction. I have spent much time and postage in securing correct information regarding our creameries, which I will include later on in this report. I also think it proper to state my views with respect to changes in our laws, additional legislation and regulations pertaining to this particular subject.

#### DAIRY MAP.

That the location of our numerous creameries, skimming stations, and cheese factories may be better shown, I have prepared a state map, which it is proposed to have printed and made a part of this report. It will, no doubt, be interesting to all and serviceable to many, and, I hope, will be appreciated in accordance with the large amount of labor required to get up such a map accurately.

#### CREAMERY GROWTH AND NOTES.

There were operated in this state, during at least a part of the present year, 445 creameries, and in connection with these, 62 skimming stations; for all practical purposes these may also be termed creameries; making a total of 507. The first one was built in 1880, but the larger portion of them were built within the past two years as follows: Seventy-four in 1895, and 139 in 1896. Some of them are old plants remodeled, but nearly all are new, built on the

most modern plans and equipped with the latest improved machinery. They are organized as follows: Three hundred and three coöperative, 31 stock company, 104 private, and 7 dividend. Four hundred and four of these use the separator process, only 41 continuing with the old gathered cream plan, which does very well in a few isolated locations. Six hundred and sixty-nine separators were used to separate the cream, 42,846 dairy farmers contributed to the supply and received the large bulk of the returns. Freeborn county has the largest number of creameries, Steele county the largest one, while Meeker county holds the state championship and Ramsey the national championship on quality of product. The number of creameries operating on the coöperative plan has greatly increased, also those using the separator process, since my last report, and there is no question but during this time the quality of the product has greatly improved, the cost of manufacture being also lessened; but I wish to say here that there is plenty of opportunity still for further improvements in this direction. The farmers must still further reduce the cost of milk production if they expect as large profits from this source in the future as they have had in the past.

## CREAMERY DIRECTORY, 1896.

County.	Location.	Postoffice.	When Started.	Organization.	No. Patrons.	No. Separator.	Manager.	Name of Creamery.
Anoka.....	Anoka.....	Anoka.....	1890	Stock .....	150	1	Wm. Hopper.....	
Anoka.....	Hugo.....	Centreville.....	1895	Co-operative .....	40	1	P. J. Houle.....	
Anoka.....	Golden Lake.....	New Brighton.....	October, 1895	Co-operative .....	30	1	T. T. Elwell.....	Golden Lake.
Anoka.....	Ham Lake.....	Ham Lake.....	April, 1896	Co-operative .....	47	1	B. Titterud.....	
Anoka.....	Lino.....	Lino.....	October, 1895	Co-operative .....	20	1	W. P. Jones.....	Golden Lake.
Anoka.....	St. Francis.....	St. Francis.....	May, 1896	Co-operative .....	40	1	A. S. Toplin.....	
Benton.....	Glendorado.....	Princeton.....	June, 1896	Co-operative .....	81	2	L. J. Madson.....	
Becker.....	Lake Park.....	Lake Park.....	1890	Private .....	170	1	J. A. Danielson.....	Cuba.
Becker.....	Lake Park.....	Lake Park.....	1890	Private .....	170	1	Wanestad & Co.....	
Becker.....	Andubon.....	Andubon.....	March, 1896	Co-operative .....	70	1	E. P. Skatem.....	
Becker.....	Cormorant.....	Cormorant.....	1896	Co-operative .....	50	1	A. Cherry.....	
Blue Earth.....	Madison Lake.....	Madison Lake.....	1894	Co-operative .....	30	1	W. H. Allyn.....	
Blue Earth.....	Butternut.....	Butternut.....	1894	Stock .....	127	2	G. Gutterson.....	Lake Shore.
Blue Earth.....	Mapleton.....	Mapleton.....	May, 1895	Co-operative .....	130	2	T. J. Sweeten.....	
Blue Earth.....	Vernon Centre.....	Vernon Centre.....	May, 1895	Co-operative .....	50	1	Wyman Bros.....	
Blue Earth.....	Willow Creek.....	Willow Creek.....	1894	Private .....	70	1	N. C. Haas.....	
Blue Earth.....	St. Clair.....	St. Clair.....	April, 1896	Co-operative .....	76	1	H. Guignon.....	
Blue Earth.....	Beauford.....	Beauford.....	June, 1895	Co-operative .....	149	2	C. Herzburg.....	
Blue Earth.....	Judson.....	Danville.....	April, 1893	Co-operative .....	87	3	J. W. Davis.....	Judson.
Blue Earth.....	Blue Earth.....	Blue Earth.....	May, 1896	Co-operative .....	65	2	Wm. Borchert.....	Star.
Blue Earth.....	Sterling.....	Sterling Centre.....	April, 1896	Co-operative .....	100	1	A. J. Ellis.....	
Blue Earth.....	Lake Crystal.....	Lake Crystal.....	May, 1895	Co-operative .....	30	1	N. P. Johns.....	Lily.
Blue Earth.....	Lake Crystal.....	Lake Crystal.....	May, 1896	Co-operative .....	60	1	P. C. Petterson.....	Lincoln.
Blue Earth.....	Lincoln.....	Lincoln.....	July, 1896	Co-operative .....	60	1	A. Mycew.....	Hamburg.
Blue Earth.....	Hamburg.....	Lake Crystal.....	1896	Co-operative .....	40	1	L. S. Foster.....	
Blue Earth.....	Mankato.....	Mankato.....	1892	Co-operative .....	210	3	T. Thormodson.....	Hauska.
Brown.....	Blue Earth.....	Hanska.....	1891	Co-operative .....	110	2	T. Wagner.....	Nelson & Albin.
Brown.....	Leavensworth.....	Madella.....	1894	Co-operative .....	50	1	H. G. Hillesheim.....	Stark.
Brown.....	Stark.....	Sleepy Eye.....	May, 1895	Private .....	80	2	Wm. Rossbach.....	Albin.
Brown.....	Sleepy Eye.....	Sleepy Eye.....	April, 1894	Co-operative .....	100	2	C. Halvorsen.....	Linden & C.
Brown.....	Albin.....	Sleepy Eye.....	May, 1894	Co-operative .....	70	2	F. Schweppe.....	Stegal.
Brown.....	Linden.....	Linden.....	June, 1894	Co-operative .....	61	2	J. Hanbrick.....	M. & C.
Brown.....	Sigel.....	New Ulm.....	May, 1895	Co-operative .....	120	3	C. S. Petterson.....	S. & W.
Brown.....	New Ulm.....	New Ulm.....	April, 1895	Co-operative .....	100	2	F. Schutte.....	
Brown.....	Springfield.....	Springfield.....	May, 1895	Co-operative .....	50	1		
Brown.....	Cobden.....	Cobden.....						



Brown.	Evan.	May,	1895	Co-operative	85	2	H. C. Hanson.	
Brown.	Mulligan.	May,	1896	Co-operative	50	1	Creamery Co.	
Big Stone.	Graceville.		1894	Co-operative	60	1	J. K. Crowe.	
Big Stone.	Batavia.		1894	Stock	40	1	L. Erickson.	Clinton.
Carver.	Watertown.	Dec.	1895	Private	110	1	Ray & Burke.	
Carver.	Waconia.	April,	1896	Private	150	2	H. Peterman.	Peterman.
Carver.	Waconia.	May,	1896	Private	30	2	Aug. Gornoll.	Lake Shore.
Carver.	Cologne.		1896	Private	30	1	Samuels & White.	
Carver.	Carver.		1896	Private	40	1	J. Farrel.	
Carver.	Gotha.	Nov.	1896	Co-operative	30	1	V. Ahlen.	Minn. Valley.
Carver.	Chaska.	March,	1894	Private	267	3	Samuels & White.	
Carver.	Augusta.	Dec.	1896	Co-operative	40	1	Creamery Co.	
Carver.	Hamburg.	Dec.	1894	Co-operative	50	1	Creamery Co.	
Chippewa.	Milan.		1893	Co-operative	50	1	Creamery Co.	
Chippewa.	Chippewa.	May,	1896	Co-operative	60	1	M. Olson.	Black Oak.
Chicago.	Sparta.		1890	Private	60	1	E. Kruse.	
Chicago.	Rush City.	May,	1895	Co-operative	138	2	C. A. Victor.	
Chicago.	Lindstrom.	May,	1895	Co-operative	222	4	F. A. Porter.	Kost.
Chicago.	Shafer.	May,	1894	Stock	30	1	G. Newstrom.	
Chicago.	Kost.		1894	Stock	54	1	J. Stahlberg.	
Chicago.	Harris.	April,	1896	Co-operative	63	1	L. J. Klinke.	Dallas.
Chicago.	Taylor's Falls.	May,	1896	Co-operative	60	1	G. Denery.	
Chicago.	Stacy.	June,	1896	Co-operative	95	1	J. A. Bloom.	
Chicago.	Chicago.	May,	1896	Co-operative	100	2	J. Almquist.	
Clay.	Almelund.	May,	1890	Private	60	3	C. E. Johnson.	Berg.
Clay.	Hawley.	April	1896	Co-operative	87	3	C. E. Lindquist.	
Clay.	Hawley.		1895	Co-operative	150	4	O. J. Aamodt.	
Clay.	Barnesville.		1892	Private	100	1	Evanson Bros.	Farmers'.
Clay.	Ulen.		1896	Private	100	1	A. Hiebert.	
Cottonwood.	M. Lake.	Feb.,	1895	Stock	70	1	F. J. Carpenter.	
Cottonwood.	Bingham Lake.		1895	Stock	70	1	J. F. Grant.	
Cottonwood.	Windom.	Jan.,	1895	Stock	50	1	C. Mead.	
Cottonwood.	Windom.	May,	1895	Co-operative	96	2	J. P. Nelson.	Amo.
Cottonwood.	Amo.	April,	1894	Co-operative	60	1	A. Ostland.	Westbrook.
Cottonwood.	Storden.		1896	Co-operative	250	4	A. Webster.	Highwater.
Dodge.	Storden.	June,	1893	Stock	450	1	O. Havey.	Vernon.
Dodge.	Dodge Center.	May,	1893	Co-operative	90	1	A. H. Curtis.	
Dodge.	Oslo.		1892	Stock	300	1	G. W. Bartlett.	
Dodge.	Mantorville.	April,	1894	Co-operative	60	2	O. O. Distad.	
Dodge.	Wasioja.		1895	Private	100	2	J. L. Blanch.	
Dodge.	Hayfield.	Feb.,	1895	Co-operative	14	1	F. D. Cotten.	Union Springs.
Dodge.	Claremont.		1893	Co-operative	50	1	O. F. Olson.	
Douglas.	Canistota.		1892	Private	100	1	H. C. Halvorson.	
Douglas.	Brandon.		1890	Co-operative	60	1	E. H. Erickson.	
Douglas.	Evansville.		1894	Stock	150	2	L. Smith.	
Douglas.	Osakis.							
Douglas.	Nelsen.	July,						



## CREAMERY DIRECTORY.—Continued.

County.	Location.	Postoffice.	When Started.	Organization.	No. Patrons.	No. Separators.	Manager.	Name of Creamery.
Douglas.	Unness.	Unness.	1895	Co-operative	56	1	E. G. Erickson.	
Douglas.	Garfield.	Garfield.	1896	Co-operative	60	1	A. Gustafson.	
Dakota.	Farmington.	Farmington.	1888	Private	40	1	Samuels Bros.	
Dakota.	Randolph.	Randolph.	1896	Co-operative	40	1	F. Harkness.	Prescott.
Faribault.	Prescott.	Blue Earth City.	1896	Co-operative	46	1	C. J. Schroeder.	
Faribault.	Blue Earth.	Blue Earth City.	1891	Co-operative	70	2	C. J. Snyder.	
Faribault.	Clayton.	Clayton.	1891	Co-operative	90	2	C. F. Bassett.	
Faribault.	Foster.	Banks.	1894	Co-operative	165	2	A. Miller.	Foster's.
Faribault.	Dunbar.	Wells.	1894	Co-operative	90	3	W. H. Billington.	Dunbar.
Faribault.	Wells.	Wells.	1893	Co-operative	120	2	A. Biederman.	Clark Star.
Faribault.	Delevan.	Delevan.	1896	Co-operative	90	2	D. C. Smith.	
Faribault.	Minn. Lake.	Minn. Lake.	1892	Private	50	1	Creamery Co.	
Faribault.	Klester.	Klester.	1894	Co-operative	80	2	A. A. Peterson.	Union.
Faribault.	Winnabago City.	Winnabago City.	1895	Co-operative	130	2	B. Cady.	
Faribault.	Easton.	Easton.	1895	Co-operative	128	2	F. W. Roth.	
Faribault.	Rome.	Elmore.	1895	Co-operative	60	2	W. F. Fenskl.	Rome & E.
Faribault.	Elmore.	Elmore.	1896	Co-operative	69	2	M. H. Getz.	
Faribault.	Rome.	Blaine.	1894	Co-operative	80	2	N. N. Holman.	Foster's.
Faribault.	Sheridan.	Sheridan.	1896	Co-operative	100	2	Creamery Co.	
Faribault.	Willow Creek.	Willow Creek.	1896	Co-operative	90	2	G. H. Perry.	
Faribault.	Easton.	Easton.	1895	Co-operative	80	2	H. J. Terhune.	Barber.
Faribault.	Emerald.	Blue Earth City.	1895	Co-operative	74	2	F. Sellon.	Miller.
Faribault.	Clayton.	Wells.	1895	Co-operative	80	2	J. G. Buscho.	Brush Creek.
Fillmore.	Fountain.	Fountain.	1895	Co-operative	80	2	Wm. Rolles.	
Fillmore.	Spring Valley.	Spring Valley.	1884	Co-operative	300	...	G. W. Farmer.	Valley.
Fillmore.	Harmony.	Harmony.	1881	Co-operative	650	...	G. Knutson.	
Fillmore.	Rushford.	Rushford.	1885	Co-operative	300	...	L. Knutson.	Arctic.
Fillmore.	Whalen.	Whalen.	1885	Co-operative	400	...	Bersie & Olson.	
Fillmore.	Lanesboro.	Lanesboro.	1885	Private	150	...	G. L. Hubbell.	Oakleaf.
Fillmore.	Preston.	Preston.	1883	Private	50	1	Graham & Olson.	
Fillmore.	Mabel.	Mabel.	1881	Private	170	3	Bersie & Olson.	
Fillmore.	Ostrander.	Ostrander.	1890	Private	200	1	N. Erin.	
Fillmore.	Geneva.	Geneva.	1896	Private	50	1	J. J. Morrison.	Geneva.
Freeborn.	Geneva.	Monarch.	1891	Co-operative	47	2	L. P. Lawson.	Geneva Vil
Freeborn.	Geneva.	Geneva.	1894	Co-operative	80	3	D. Herron.	
Freeborn.	Newry.	Blooming Prairie.	1893	Co-operative	70	2		

Freeborn.....	Bancroft.....	Albert Lea.....	May.....	1891 Co-operative.....	108	3 N. T. Sanberg.....	Bancroft.....
Freeborn.....	Rice land.....	Albert Lea.....	June.....	1890 Co-operative.....	105	3 G. Johnson.....	Rice land.....
Freeborn.....	Freeborn.....	Albert Lea.....	June.....	1892 Co-operative.....	138	3 M. Halverson.....	
Freeborn.....	Bath.....	Bath.....	April.....	1893 Co-operative.....	60	3 J. B. Nolan.....	Poplar Grove.....
Freeborn.....	Alden.....	Alden.....	March.....	1893 Co-operative.....	180	3 A. Robertson.....	
Freeborn.....	Clark's Grove.....	Clark's Grove.....	April.....	1890 Co-operative.....	120	4 C. H. Dills.....	
Freeborn.....	Freeborn.....	Freeborn.....	April.....	1892 Co-operative.....	120	2 G. M. Miller.....	
Freeborn.....	Hartland.....	Hartland.....	April.....	1892 Co-operative.....	86	2 E. H. Stensvad.....	
Freeborn.....	Glenville.....	Glenville.....	January.....	1890 Co-operative.....	300	6 A. W. Trow.....	Sumner Val.....
Freeborn.....	Rice land.....	Hayward.....	August.....	1893 Co-operative.....	46	2 O. M. Hanson.....	
Freeborn.....	Hayward.....	Hayward.....	April.....	1892 Co-operative.....	40	1 M. P. Hanson.....	
Freeborn.....	Manchester.....	Manchester.....	April.....	1893 Co-operative.....	96	3 G. O. Myran.....	
Freeborn.....	Mansfield.....	Mansfield.....	July.....	1891 Co-operative.....	95	2 J. H. Emerson.....	
Freeborn.....	Moscow.....	Moscow.....	April.....	1892 Co-operative.....	98	2 J. Freeman.....	
Freeborn.....	Oakland.....	Austin.....	June.....	1894 Stock.....	40	1 Wm. Catter.....	Oakland.....
Freeborn.....	Deer Creek.....	Deer Creek, Ia.....	Nov.,.....	1893 Co-operative.....	125	3 M. J. Rohne.....	State Line.....
Freeborn.....	Clover.....	Clover.....		1890 Co-operative.....	45	2 C. R. Lindemann.....	Clover Valley.....
Freeborn.....	Twin Lakes.....	Twin Lakes.....		1893 Co-operative.....	80	2 J. McGuire.....	
Freeborn.....	Emmons.....	Emmons.....		1892 Co-operative.....	181	2 A. Petterson.....	North Star.....
Freeborn.....	London.....	London.....		1894 Co-operative.....	50	1 D. M. Jones.....	
Freeborn.....	Trenton.....	Trenton.....		1895 Co-operative.....	80	2 S. Weed.....	
Freeborn.....	Armstrong.....	Armstrong.....		1890 Co-operative.....	80	2 L. Fogle.....	
Goodhue.....	Belvidere Mills.....	Belvidere Mills.....		1894 Co-operative.....	80	1 G. O. Gaylord.....	
Goodhue.....	Forest Mills.....	Forest Mills.....		1886 Private.....	180	2 Dickey & Co.....	Cold Springs.....
Goodhue.....	Kenyon.....	Kenyon.....		1890 Dividend.....	400	1 Lubke Bros.....	
Goodhue.....	Kenyon.....	Kenyon.....		1887 Private.....	300	8 Crescent Cr.....	North Star.....
Goodhue.....	Kenyon.....	Kenyon.....	Nov.,.....	1892 Stock.....	225	3 O. L. Bruslatten.....	
Goodhue.....	White Rock.....	White Rock.....		1888 Private.....	210	1 G. O. Miller.....	Minneapolis.....
Goodhue.....	Wanamingo.....	Wanamingo.....		1892 Co-operative.....	400	1 R. O. Lund.....	
Goodhue.....	Zumbrota.....	Zumbrota.....		1883 Stock.....	250	3 Crescent Cr.....	
Goodhue.....	Zumbrota.....	Zumbrota.....		1891 Stock.....	50	1 C. F. Field.....	
Goodhue.....	Frontenac.....	Frontenac.....		1895 Private.....	60	2 F. L. Enberg.....	
Goodhue.....	Vasa.....	Vasa.....	Nov.,.....	1890 Private.....	80	2 A. R. Runke.....	
Goodhue.....	Stanton.....	Stanton.....		1896 Private.....	150	1 E. G. Hammer.....	
Goodhue.....	Goodhue.....	Goodhue.....	March.....	1893 Private.....	50	1 W. L. Chappell.....	
Grant.....	Asby.....	Asby.....		1888 Stock.....	120	3 A. R. Runke.....	Minn. Muk Co.....
Hennepin.....	Minneapolis.....	Minneapolis.....		1890 Private.....	120	3 J. R. Anderson.....	Golden.....
Hennepin.....	Minneapolis.....	Minneapolis.....		1894 Co-operative.....	60	1 F. S. Coffin.....	
Hennepin.....	Long Lake.....	Long Lake.....	June.....	1895 Co-operative.....	35	1 G. H. Smith.....	Minnetonka.....
Hennepin.....	St. Bonifacius.....	St. Bonifacius.....	March.....	1896 Stock.....	75	1 A. Thompson.....	New Model.....
Hennepin.....	Maple Plain.....	Maple Plain.....		1896 Co-operative.....	40	1 O. Stiner.....	
Houston.....	Minneapolis.....	Minneapolis.....		1889 Private.....	200	1 J. A. Johnson.....	Dairy Assoc.....
Houston.....	Freeburg.....	Freeburg.....		1894 Private.....	80	1 J. E. Elde.....	
Houston.....	Houston.....	Houston.....	August.....	1884 Private.....	250	1 O. N. Kjomme.....	
Houston.....	Spring Grove.....	Spring Grove.....					

## CREAMERY DIRECTORY, 1896.—Continued.

County.	Location.	Postoffice.	When Started.	Organization.	No. Pa- trons.	No. Sepa- rators.	Manager.	Name of Creamery.
Houston.	Wilmington.	Wilmington.	1888	Private	300	...	J. E. Eide.	Honey.
Houston.	Bee.	Bee.	1894	Co-operative	70	...	M. Magnuson.	Scotch.
Houston.	La Crescent.	La Crescent.	1895	Private	60	1	D. Furgeson.	
Houston.	Caledonia.	Caledonia.	1896	Private	20	1	A. D. Sprague.	
Houston.	Eitzen.	Eitzen.	1896	Co-operative	50	1	H. W. Fruechte.	
Isanti.	Cambridge.	Cambridge.	1896	Co-operative	106	1	E. F. Gillespie.	
Isanti.	Spring Lake.	Spring Lake.	1895	Co-operative	91	1	A. R. Hammergren.	
Jackson.	Wildor.	Wildor.	1884	Private	20	1	Rank Bros.	
Jackson.	Heron Lake.	Heron Lake.	1891	Private	20	1	H. H. Kessler.	
Jackson.	Jackson.	Jackson.	1895	Private	50	1	H. Volgamore.	
Jackson.	Lakefield.	Lakefield.	1896	Private	40	1	J. Fredrickson.	
Jackson.	Sioux Valley.	Sioux Valley.	1894	Co-operative	100	2	J. Schwager.	Christiana.
Jackson.	Windom.	Windom.	1891	Co-operative	109	2	G. Mellicke.	
Jackson.	Atwater.	Atwater.	1892	Stock	60	1	D. F. Senecal.	
Kandiyohi.	New London.	New London.	1890	Co-operative	68	2	G. M. Dodd.	
Kandiyohi.	Lake Elizabeth.	Lake Elizabeth.	1893	Co-operative	48	2	P. E. Edmund.	West.
Kandiyohi.	Lake Lillian.	West Lake Lillian.	1896	Co-operative	50	1	E. G. Flamm.	Money.
Kandiyohi.	Pennock.	Pennock.	1895	Co-operative	155	2	E. G. Freeman.	Gold Minc.
Kandiyohi.	Irving.	Irving.	1895	Co-operative	50	1	J. J. Anderson.	Scandia.
Kandiyohi.	Warner.	Warner.	1896	Co-operative	64	1	J. P. Ronness.	Central.
Kandiyohi.	Kandiyohi.	Kandiyohi.	1896	Co-operative	37	1	L. A. Whitney.	
Kandiyohi.	Lintonville.	Lintonville.	1896	Co-operative	50	1	J. A. Nurse.	
Kandiyohi.	Norway Lake.	Norway Lake.	1896	Co-operative	60	1	M. Severson.	
Kandiyohi.	West Lake.	West Lake.	1896	Co-operative	82	1	O. Reigstad.	Svea.
Kandiyohi.	Willmar.	Willmar.	1895	Co-operative	50	1	A. O. Nelson.	Mamre.
Kandiyohi.	Mamre.	Pennock.	1895	Co-operative	62	1	J. P. Larsen.	
Kandiyohi.	Lake Lillian.	East Lake Lillian.	1896	Co-operative	30	1	L. P. Oure.	
Kandiyohi.	Mora.	Mora.	1896	Co-operative	41	1	E. L. Anderson.	
Kandiyohi.	Brunswick.	Brunswick.	1896	Co-operative	300	1	S. E. Talman.	
Le Sueur.	New Prague.	New Prague.	1888	Private	450	2	C. Mickus.	Empire.
Le Sueur.	Le Sueur.	Le Sueur.	1880	Private	110	2	G. W. Taylor.	Diamond Lake.
Le Sueur.	Kilkenny.	Kilkenny.	1894	Co-operative	60	1	C. D. Corey.	Lake View.
Le Sueur.	Cordova.	Cordova.	1895	Private	50	1	R. Curtis.	
Le Sueur.	Waterville.	Waterville.	1894	Co-operative	20	1	Glofelter.	
Le Sueur.	Le Sueur Center.	St. Henry.	1896	Private	50	1	M. D. Fider.	



Lyon.....	Tracy.....	1891	Co-operative	46	1	G. P. Erb.....	Center Creek.
Lyon.....	Russell.....	1895	Co-operative	50	1	J. P. Petterson.....	
Lyon.....	Florence.....	1895	Co-operative	33	1	A. Ofstad.....	
Lac qui Parle.....	Garvin.....	1896	Stock	50	1	O. G. Bumford.....	
Dawson.....	Dawson.....	1894	Private	100	1	C. Halvorsen.....	
Lincoln.....	Tyler.....	1892	Co-operative	50	1	N. A. Nelson.....	
Martin.....	Fairmont.....	1893	Private	140	3	Sondergaard & Co.....	Fraser.
Martin.....	Sherburne.....	1894	Co-operative	20	1	Wm. Weidler.....	
Martin.....	Granada.....	1894	Co-operative	60	1	Bert Ellis.....	
Martin.....	Nashville Center.....	1896	Co-operative	110	2	S. Loring.....	
Martin.....	Welcome.....	1890	Co-operative	50	1	W. A. Hinton.....	
Martin.....	East Chain.....	1896	Co-operative	40	1	A. R. Tutbill.....	
Meeker.....	Panbassen.....	1896	Co-operative	92	2	G. H. Nichols.....	
Meeker.....	Grove City.....	1889	Co-operative	33	1	L. Meyer.....	Center.
Meeker.....	Danielson.....	1890	Stock	100	2	C. C. Reigen.....	
Meeker.....	Cedar Mills.....	1891	Co-operative	87	3	P. Mortenson.....	Danielson.
Meeker.....	Stout.....	1894	Co-operative	44	2	W. C. McElrath.....	
Meeker.....	Litchfield.....	1894	Co-operative	90	2	E. Evenson.....	Star Lake.
Meeker.....	Manannah.....	1894	Co-operative	206	3	H. Ames.....	
Meeker.....	Dassel.....	1894	Co-operative	70	2	S. Caswell.....	
Meeker.....	Greenleaf.....	1895	Co-operative	134	2	B. Mead.....	
Meeker.....	Forest City.....	1895	Co-operative	60	1	A. R. Monford.....	
Meeker.....	Kingston.....	1895	Co-operative	60	1	H. S. Atkinson.....	
Meeker.....	Watkins.....	1894	Co-operative	80	2	T. J. Murphy.....	
Meeker.....	Darwin.....	1896	Co-operative	40	1	Creamery Co.....	
Meeker.....	Darwin.....	1896	Co-operative	65	1	C. D. Brown.....	
Meeker.....	Eden Valley.....	1896	Co-operative	71	2	J. J. Leverenz.....	Lake Stella.
Meeker.....	Eden Valley.....	1896	Co-operative	30	1	Creamery Co.....	
Meeker.....	Princeton.....	1890	Stock	100	...	C. H. Chadburne.....	
Meeker.....	Biscay.....	1890	Co-operative	47	2	H. Ulrich.....	
Meeker.....	Hutchinson.....	1894	Co-operative	150	2	W. N. Moses.....	
Meeker.....	Winsted Lake.....	1895	Co-operative	40	1	J. K. Lewis.....	
Meeker.....	Lester Prairie.....	1896	Co-operative	50	1	E. Anderson.....	
Meeker.....	New Auburn.....	1895	Co-operative	70	1	A. Kunz.....	
Meeker.....	Glencoe.....	1895	Co-operative	100	3	A. Albel.....	
Meeker.....	Brownton.....	1896	Private	75	1	E. M. Rallen.....	Wisconsin Dairy.
Meeker.....	Stewart.....	1890	Private	150	...	Relse Bros.....	
Meeker.....	Royalton.....	1893	Private	60	...	J. H. Russell.....	
Murray.....	Chandler.....	1894	Co-operative	40	1	F. Barrows.....	
Murray.....	Avoca.....	1895	Co-operative	150	3	C. Knold.....	
Murray.....	Walnut Grove.....	1896	Co-operative	35	1	T. McAvoy.....	Willow Creek.
Murray.....	Fulda.....	1896	Co-operative	48	1	H. J. Kukkuck.....	
Murray.....	Slayton.....	1895	Co-operative	40	1	D. Thornduke.....	
Murray.....	Currie.....	1896	Co-operative	43	1	J. Mesny.....	
Murray.....	Dovray.....	1895	Co-operative	60	2	N. S. Taarud.....	



## CREAMERY DIRECTORY, 1896.—Continued.

County.	Location.	Postoffice.	When Started.	Organization.	No. Pa- trons.	No. Sepa- rators.	Manager.	Name of Creamery.
Mower.....	Adams.....	Adams.....	1890	Private.....	...	1	J. Kriebbach.....	Red Rock.
Mower.....	Brownsdale.....	Brownsdale.....	1893	Stock.....	75	2	D. C. Tanner.....	
Mower.....	Waltham.....	Waltham.....	1893	Co-operative.....	100	1	F. J. Hills.....	
Mower.....	Grand Meadow.....	Grand Meadow.....	1893	Co-operative.....	300	...	R. E. Crane.....	
Mower.....	Nevada.....	Rose Creek.....	1894	Co-operative.....	66	2	H. J. Hanson.....	Nevada.
Mower.....	Corning.....	Corning.....	1892	Co-operative.....	80	2	H. Kittleson.....	Red Oak Grove.
Mower.....	Leroy.....	Leroy.....	1894	Co-operative.....	100	2	G. W. Hardin.....	
Mower.....	Austin.....	Austin.....	1894	Stock.....	33	1	C. D. Belten.....	
Mower.....	Lansing.....	Lansing.....	1894	Co-operative.....	115	3	H. M. McIntyre.....	
Mower.....	Rose Creek.....	Rose Creek.....	1890	Co-operative.....	160	2	J. Conran.....	
Mower.....	Rache.....	Rache.....	1893	Co-operative.....	75	2	W. Wilson.....	
Mower.....	Sutton.....	Sutton.....	1896	Co-operative.....	70	2	W. E. Dally.....	Maple Leaf.
Mower.....	Lyle.....	Lyle.....	1896	Co-operative.....	84	2	C. Volstad.....	Offet Creek.
Mower.....	Lyle.....	Lyle.....	1896	Co-operative.....	90	2	J. Bergeson.....	State Line.
Mower.....	Lyle.....	Lyle.....	1892	Private.....	50	1	Thompson & Dock.....	
Mower.....	Lyle.....	Lyle.....	1894	Co-operative.....	123	2	H. Froehlich.....	
Nicollet.....	Courtland.....	Courtland.....	1890	Co-operative.....	70	1	F. Briggs.....	Willow Lawn.
Nicollet.....	Traverse.....	Traverse.....	1894	Co-operative.....	80	2	A. Samuelson.....	L. & B.
Nicollet.....	Bernadotta.....	New Uim.....	1895	Co-operative.....	40	2	A. F. Anderson.....	
Nicollet.....	New Sweden.....	New Sweden.....	1895	Co-operative.....	56	1	J. Wild.....	Lafayette.
Nicollet.....	Lafayette.....	New Uim.....	1895	Co-operative.....	115	3	M. Walser.....	St. George.
Nicollet.....	St. George.....	St. George.....	1893	Co-operative.....	90	2	L. R. Hobert.....	Riverside.
Nicollet.....	Nicollet.....	Nicollet.....	1896	Co-operative.....	80	2	Aug. Hed.....	
Nicollet.....	Bernadotta.....	Bernadotta.....	1896	Co-operative.....	70	2	O. Anthony.....	
Nicollet.....	Norseland.....	Norseland.....	1896	Co-operative.....	52	1	R. Humlinton.....	
Nobles.....	Worthington.....	Worthington.....	1896	Stock.....	52	1	G. W. Wheeler.....	
Nobles.....	Round Lake.....	Round Lake.....	1896	Co-operative.....	40	1	R. J. White.....	
Nobles.....	Ellsworth.....	Ellsworth.....	1897	Co-operative.....	98	1	H. Johnson.....	
Nobles.....	Dundee.....	Dundee.....	1897	Private.....	54	1	M. S. Boyle.....	
Nobles.....	Adrian.....	Adrian.....	1898	Stock.....	60	1	Stenzel Bros.....	
Nobles.....	Little Rock.....	Little Rock.....	1898	Private.....	52	1	Creamery Co.....	
Norman.....	Rindal.....	Rindal.....	1897	Co-operative.....	200	...		
Norman.....	Gary.....	Gary.....	1898	Co-operative.....	50	1	J. H. Graslle.....	
Olmsted.....	Charfield.....	Charfield.....	1881	Co-operative.....	450	...	C. J. Manahan.....	
Olmsted.....	Oronoco.....	Oronoco.....	1881	Private.....	110	3	McCray Bros.....	
Olmsted.....	Lalnd.....	Lalnd.....	1888	Private.....	200	...	E. S. Hurnling.....	

Olmsted.	Rochester.	Rochester.	1881	Private	200	4	Crescent Cr. . . . .	
Olmsted.	Rochester.	Rochester.	1887	Co-operative	55	3	J. Cadwell. . . . .	
Olmsted.	Byron.	Byron.	1893	Co-operative	250	7	R. D. Maxwell. . . . .	
Olmsted.	Rock Dell.	Rock Dell.	1889	Co-operative	373		H. Olson. . . . .	Zumbro.
Olmsted.	Genoa.	Genoa.	1894	Private	40	1	H. Hendrickson. . . . .	
Olmsted.	Simpson.	Simpson.	1896	Co-operative	50	1	L. Bingham. . . . .	
Olmsted.	Dalton.	Dalton.	1892	Co-operative	50	1	O. Nelson. . . . .	
Olmsted.	Stod.	Stod.	1894	Co-operative	75	1	C. A. Wibe. . . . .	
Olmsted.	Pelican Rapids.	Pelican Rapids.	1895	Private	49	1	Blyberg & Haugen. . . . .	Park Region.
Olmsted.	Fergus Falls.	Fergus Falls.	1893	Private	60	1	W. L. Chappell. . . . .	
Olmsted.	Heming.	Heming.	1896	Stock	36	1	J. Larsen. . . . .	
Olmsted.	Squire.	Squire.	1896	Co-operative	54	1	J. Thorsen. . . . .	Aastad.
Olmsted.	Battle Lake.	Battle Lake.	1894	Private	60	1	O. Albertson. . . . .	
Olmsted.	Underwood.	Underwood.	1896	Co-operative	40	1	Creamery Co. . . . .	
Olmsted.	Dover.	Dover.	1896	Co-operative	30	1	D. W. Drake. . . . .	
Olmsted.	Fosston.	Fosston.	1896	Co-operative	60	1	B. C. Brown. . . . .	
Olmsted.	McIntosh.	McIntosh.	1891	Co-operative	150	1	J. D. Knutson. . . . .	North Star.
Olmsted.	Cyrus.	Cyrus.	1893	Co-operative	30	1	Iver Thompson. . . . .	
Olmsted.	Farwell.	Farwell.	1890	Co-operative	40	1	N. A. Fosberg. . . . .	
Olmsted.	Lowry.	Lowry.	1894	Co-operative	100	2	E. O. Holen. . . . .	Crystal.
Olmsted.	Starbuck.	Starbuck.	1896	Co-operative	51	1	H. L. Larsen. . . . .	
Olmsted.	Sedan.	Sedan.	1896	Co-operative	50	1	W. T. Perry. . . . .	
Olmsted.	Villard.	Villard.	1896	Co-operative	75	1	H. A. Adams. . . . .	
Olmsted.	Edgerton.	Edgerton.	1890	Private	16	1	J. P. Ashbaugh. . . . .	
Olmsted.	Pipestone.	Pipestone.	1896	Co-operative	26	1	D. W. Messman. . . . .	Pioneer.
Olmsted.	Pine City.	Pine City.	1890	Private	300	7	W. E. Smith. . . . .	
Olmsted.	St. Paul.	St. Paul.	1896	Co-operative	50	1	Crescent Cr. . . . .	
Olmsted.	Ramsey.	Ramsey.	1886	Private	200	1	Milton Dairy. . . . .	
Olmsted.	St. Paul.	St. Paul.	1889	Private	50	1	People's Dairy. . . . .	
Olmsted.	St. Paul.	St. Paul.	1895	Co-operative	114	2	O. L. Donberg. . . . .	
Olmsted.	Redwood Falls.	Redwood Falls.	1895	Co-operative	76	2	H. H. Dahl. . . . .	Highwater.
Olmsted.	Revere.	Revere.	1895	Co-operative	70	1	P. Clausen. . . . .	
Olmsted.	Lamberton.	Lamberton.	1895	Co-operative	60	1	P. Monson. . . . .	
Olmsted.	Morgan.	Morgan.	1896	Co-operative	173	2	A. Schmidt. . . . .	
Olmsted.	Sanborn.	Sanborn.	1895	Co-operative	33	2	M. Bredvold. . . . .	S. & W.
Olmsted.	Sundown.	Sundown.	1896	Co-operative	173	1	P. Curtan. . . . .	Granite Rock.
Olmsted.	West Line.	West Line.	1896	Co-operative	41	1	T. L. Gilbert. . . . .	Logan.
Olmsted.	Logan.	Logan.	1896	Co-operative	50	1	T. Sloan. . . . .	Sheridan.
Olmsted.	Bellview.	Bellview.	1895	Co-operative	82	2	F. A. Zieske. . . . .	Brookville.
Olmsted.	Springfield.	Springfield.	1892	Private	60	1	J. Richardson. . . . .	
Olmsted.	Bird Island.	Bird Island.	1893	Stock	50	1	J. Stensvad. . . . .	
Olmsted.	Hector.	Hector.	1890	Private	125	1	J. J. Brugman. . . . .	
Olmsted.	Olivia.	Olivia.	1895	Co-operative	200	5	H. A. Petterson. . . . .	Northwestern.
Olmsted.	Sacred Heart.	Sacred Heart.	1896	Co-operative	72	1	P. Perchges. . . . .	
Olmsted.	Fairfax.	Fairfax.	1896	Co-operative	50	1	J. H. McGowan. . . . .	
Olmsted.	Morton.	Morton.						

## CREAMERY DIRECTORY, 1896—Continued.

County.	Location.	Postoffice.	When Started.	Organization.	No. Patrons.	No. separators.	Manager.	Name of Creamery.
Renville.	Renville.	Renville.	1896	Co-operative	60	1	P. B. Olson.	
Renville.	Buffalo Lake.	Buffalo Lake.	1896	Co-operative	80	1	Wm. Rusch.	
Renville.	Franklin.	Franklin.	1894	Co-operative	40	1	C. W. Parsons.	
Renville.	Cairo.	Franklin.	May,	Co-operative	73	1	J. C. Frohlich.	St. Ridgely
Rock.	Hills.	Hills.	1896	Co-operative	40	1	J. R. Wright.	
Rock.	Luverne.	Luverne.	Sept.,	Co-operative	40	1	Creamery Co.	
Rock.	Hardwick.	Hardwick.	October,	Co-operative	65	1	J. N. Beatty.	
Rice.	Dundas.	Dundas.	May,	Co-operative	75	3	Crescent Cr.	Valley.
Rice.	Faribault.	Faribault.	1888	Private	80	2	F. A. Berry.	
Rice.	Northfield.	Northfield.	1890	Stock	300	9	Crescent Cr.	
Rice.	Webster.	Webster.	1888	Private	140	3	L. D. Harkins.	Wolcott.
Rice.	Wheatland.	Wheatland.	1889	Co-operative	140	4	O. M. Olson.	
Rice.	Robert's Lake.	Faribault.	1893	Co-operative	40	1	P. Faber.	
Rice.	Nerstrand.	Wheatland.	1894	Stock	40	1	F. Gutzler.	
Rice.	Lester.	Nerstrand.	1894	Dividend	72	2	G. Kispert.	
Rice.	Erin.	Faribault.	1893	Co-operative	30	1	C. O. Person.	
Rice.	Richland.	Richland.	1896	Co-operative	60	1	N. Becker.	
Rice.	Morristown.	Morristown.	1896	Co-operative	50	1	J. Degnan.	
Rice.	New Market.	New Market.	1896	Co-operative	115	2	J. W. Jackson.	
Scott.	Jordan.	Jordan.	1896	Co-operative	60	1	J. Thomas.	Jersey.
Scott.	Belle Plaine.	Belle Plaine.	1896	Co-operative	45	1	J. A. Zettel.	
Scott.	Cedar Lake.	Cedar Lake.	1890	Private	100	4	T. Milton.	
Scott.	Shakopee.	Shakopee.	1896	Co-operative	40	1	Creamery Co.	
Scott.	Marystown.	Marystown.	1892	Private	110	2	J. Farrel.	
Swift.	Appleton.	Appleton.	1896	Private	70	1	Samuels & White.	
Swift.	Benson.	Benson.	1896	Private	60	1	D. W. Little.	
Swift.	Kirkhoven.	Kirkhoven.	1893	Stock	90	1	H. P. McConnell.	
Swift.	Swift Falls.	Swift Falls.	1896	Co-operative	50	1	F. P. Wells.	
Stevens.	Morris.	Morris.	1896	Co-operative	100	1	J. M. Danely.	
Sibley.	Arlington.	Arlington.	1894	Private	58	1	G. Darling.	
Sibley.	Henderson.	Henderson.	1896	Co-operative	116	4	Straughn & Co.	
Sibley.	Gaylord.	Gaylord.	1883	Private	300	...	A. F. Phoele.	
Sibley.	Gibbons.	Gibbons.	1888	Private	200	2	F. A. Thoele.	
Sibley.	Winthrop.	Winthrop.	1882	Private	80	1	O. Benson.	
Sibley.	Winthrop.	Winthrop.	1890	Stock	60	2	T. Thorsen.	
Sibley.	Winthrop.	Winthrop.	1896	Co-operative	...	...	...	



Stearns.	Avon.	1892	Co-operative	75	1	J. Thielman	Richmond.
Stearns.	Melrose.	1896	Co-operative	50	1	Creamery Co.	
Stearns.	Torah.	1890	Stock	493	1	N. L. Ladner	
Stearns.	Cold Springs.	1896	Co-operative	75	1	J. Medved	
Stearns.	Spring Hill.	1896	Co-operative	75	1	Ed. Hogan	
Stearns.	New Paynesville.	1896	Co-operative	70	2	S. P. Roach	
Stearns.	Albany.	1896	Co-operative	189	2	Kraker & Werten	
Stearns.	Belgrade.	1891	Private	25	1	L. L. Nordin	
Stearns.	Kimball.	1894	Co-operative	50	1	W. Dixon	
Stearns.	Brooten.	1896	Co-operative	65	1	T. O. Sheldo	
Stearns.	Georgeville.	1891	Private	50	1	F. S. Thorgaard	
Stearns.	Sauk Center.	1891	Private	74	1	O. C. Cass	
Stearns.	New Munich.	1896	Co-operative	61	1	A. N. Lohertz	
Steele.	Holdingsford.	1891	Private	185	1	M. Wardian	
Steele.	Clinton Falls.	1892	Co-operative	45	2	C. M. Finch	
Steele.	Havana.	1894	Co-operative	80	2	W. H. Harlie	
Steele.	Summit.	1893	Co-operative	90	4	S. Peterson	Union.
Steele.	Blooming Prairie.	1892	Co-operative	200	4	G. A. Petterson	
Steele.	Berlin.	1891	Co-operative	70	2	T. Brown	
Steele.	Pratt.	1894	Co-operative	110	4	R. Crickmore	
Steele.	Bixby.	1892	Co-operative	60	1	N. I. Nelson	
Steele.	Meriden.	1893	Co-operative	134	5	G. Bosshard	Golden Rule.
Steele.	Owatonna.	1894	Co-operative	87	3	F. W. Beckman	Crown.
Steele.	Owatonna.	1894	Co-operative	100	2	N. O. Partridge	Merton.
Steele.	Cooleyville.	1891	Co-operative	80	3	Wm. Glascon	Gilt Edge.
Steele.	Meriden.	1889	Co-operative	120	4	F. G. Sloan	Berlin & Suriat.
Steele.	Summit.	1894	Co-operative	80	2	J. W. Andrews	Summit.
Steele.	Steele Center.	1892	Co-operative	85	2	F. Pirke	
Steele.	Medford.	1894	Co-operative	100	3	W. Koyar	
Steele.	Rice Lake.	1895	Co-operative	67	2	D. A. McKinley	
Steele.	Moland.	1896	Co-operative	74	2	G. F. Hunter	
Todd.	Long Prairie.	1892	Private	40	1	A. Hegland	
Traverse.	Clarissa.	1892	Stock	100	1	Wm. McKillop	
Traverse.	Brown's Valley.	1891	Private	100	1	L. S. Leighton	
Wabasha.	Wheaton.	1895	Co-operative	35	1	C. H. Wilkins	Lake Valley.
Wabasha.	Hammond.	1891	Private	150	1	D. O. Westman	
Wabasha.	Mazeppa.	1892	Private	80	1	A. J. Handy	
Waseca.	Plainview.	1892	Private	300	1	Dickey Bros.	
Waseca.	Freedom.	1894	Co-operative	120	2	Wedge & Co.	
Waseca.	Vivian.	1895	Co-operative	126	2	S. E. Severson	County Line.
Waseca.	Alma City.	1895	Co-operative	135	2	R. Doyle	Phum Valley.
Waseca.	Morristown.	1896	Co-operative	135	1	E. Gates	
Waseca.	New Richmond.	1893	Private	75	1	M. A. Goar	Blooming Grove.
Waseca.	Otisco.	1893	Co-operative	100	2	H. Jehnings	Alpha.
						2	Le Sueur Valley.



## CREAMERY DIRECTORY, 1893—Continued.

County.	Location.	Postoffice.	When Started.	Organization.	No. Patrons.	No. Sectors.	Manager.	Name of Creamery.
Waseca	Janesville	Janesville	March, 1895	Dividend	120	2	P. G. Ayers	Star.
Waseca	New Richland	New Richland	1892	Co-operative	90	3	A. Rotegard	
Waseca	Waseca	New Richland	1896	Co-operative	70	2	F. Mahler	Oakwood.
Waseca	Oakwood	Waseca	1895	Co-operative	50	1	H. Lewer	
Waseca	Palmer	Palmer	1894	Co-operative	70	1	O. S. Bagne	
Waseca	Vivian	Minnesota Lake	1896	Co-operative	60	2	A. Draeger	Hamburg.
Waseca	St. Marys	Waseca	April, 1896	Co-operative	71	2	M. Gallagher	St. Marys.
Waseca	Smith's Mills	Smith's Mills	May, 1896	Co-operative	99	1	A. L. Lane	
Washington	New Scandia	Scandia	1894	Co-operative	182	3	A. E. Morrison	
Washington	Newport	Newport	Sept., 1894	Co-operative	50	1	J. A. Jones	
Washington	Cottage Grove	Cottage Grove	August, 1894	Co-operative	50	2	T. L. Furber	
Washington	Forest Lake	Forest Lake	1895	Co-operative	92	1	J. L. Simmons	
Watsonwan	Madella	Madella	1891	Co-operative	200	4	J. E. Grogan	
Watsonwan	Felden	Madella	1892	Co-operative	49	1	C. Gove	Felden.
Watsonwan	St. James	St. James	1892	Private	200	3	Kruse & Gehrls	
Watsonwan	St. James	St. James	1896	Private	60	1	W. Gibbs	
Watsonwan	Butterfield	Butterfield	1892	Co-operative	80	2	E. Wienecke	
Watsonwan	South Branch	South Branch	1896	Private	50	1	Creamery Co.	
Watsonwan	Long Lake	St. James	1896	Co-operative	40	1	C. G. Christianson	
Watsonwan	Odin	Odin	1896	Co-operative	40	1	J. Petterson	
Watsonwan	Adrian	Sveadahl	June, 1893	Co-operative	72	2	A. Swanson	
Wright	Monticello	Monticello	1890	Private	200	3	Bryant & Andrews	
Wright	Delano	Delano	1895	Private	175	3	C. G. Roosen	
Wright	Cokato	Cokato	1895	Co-operative	80	2	J. Nygren	
Wright	Stockholm	Cokato	1895	Co-operative	105	1	J. Ekly	
Wright	St. Michael's	St. Michael's	1895	Private	150	2	Dick Bros.	
Wright	Howard Lake	Howard Lake	1894	Co-operative	60	2	F. Prohl	
Wright	French Lake	French Lake	1896	Co-operative	65	1	A. J. Lindberg	
Wright	Waverly	Waverly	1896	Co-operative	120	1	C. G. Kingstedt	
Wright	Montrose	Montrose	1896	Private	90	1	W. Pfaff	
Wright	Buffalo	Buffalo	1896	Private	40	1	S. G. Gilbert	
Wright	Hanover	Hanover	1896	Private	60	1	E. Strunk	
Wright	Amundale	Amundale	1896	Co-operative	70	1	L. Isensee	North Star.
Winona	Bethany	Bethany	1893	Dividend	40	2	J. Streblow	
Winona	St. Charles	St. Charles	1882	Dividend	200	1	P. H. Keffer	

Winona.....	Beaver.....	Beaver.....	1894, Dividend.....	30	1 Scott & Kelfer.....
Winona.....	Saratoga.....	Clyde.....	1891 Co-operative.....	300	E. B. Gerry.....
Winona.....	Utica.....	Utica.....	1891 Private.....	250	E. S. Humling.....
Winona.....	Pickwick.....	Pickwick.....	1890 Private.....	60	Creamery Co.....
Yellow Medicine.....	Rolling Stone.....	Rolling Stone.....	1894 Dividend.....	40	1 Scott & Kelfer.....
Yellow Medicine.....	Wood Lake.....	Wood Lake.....	1893 Private.....	100	1 J. P. Houck.....
Yellow Medicine.....	St. Leo.....	St. Leo.....	1891 Private.....	50	F. Antony.....
Yellow Medicine.....	Echo.....	Echo.....	1891 Private.....	300	J. Hanson.....
Yellow Medicine.....	Clarkfield.....	Clarkfield.....	1896 Private.....	50	1 C. Monson.....
Yellow Medicine.....	Granite Falls.....	Granite Falls.....	1890 Private.....	.....	A. E. Morse.....

## CREAMERY STATISTICS.

From the 445 creameries operated in this state, I have succeeded, by diligent efforts, in obtaining whole or partial reports from 258; only 72 of these have furnished a complete report of their year's business. These reports present some very interesting facts indeed. They show that the 72 creameries reporting received during the last fiscal year 180,327,260 pounds of milk, an average of 2,504,545 pounds for each factory. At this ratio the factories of the state would have received 1,114,522,525 pounds of milk the last fiscal year. Amount of butter made, 7,964,978 pounds, an average of 110,624 pounds to the creamery, making, at this ratio, a production of 49,227,680 pounds in the state. Of this amount 1,282,269 pounds were made in June, an average of 17,780 pounds for each creamery. At this ratio 7,912,100 pounds were made in June last. These reports show that it took 22.63 pounds of milk for a pound of butter. The 72 creameries received \$1,464,263.13 net for their product, an average of \$20,336.98 for each. At this ratio the Minnesota creameries would have received \$9,049,956.10 for their year's make. The expense of operating the 72 was \$179,055.78, an average of \$2,209.10 for each, making an average cost per pound of 2.25 cents for manufacturing. The cost for manufacturing varied greatly in the different creameries, ranging from .94 of 1 cent to over 5 cents per pound. This expense does not vary as one would naturally suppose, reduced or increased as the business of the creamery is large or small; but I notice that while the cost of manufacturing is low in some very small creameries, it is very high in some of the large ones. One thing shows up very plainly; the creameries operating skimming stations show an excessive expense. The above 72 creameries quoted include some of the largest as well as some of the small ones; but, on the whole, they are above the average in the state by about 10 per cent, as partial reports from 258 show, and this percentage should be deducted from the output and values given.

## STARTING A CREAMERY.

In my previous report I advocated starting a creamery where 300 cows could be signed within a reasonable distance from the proposed plant. This was based on higher prices for butter than the present scale, and the fact that we were shipping out large quantities of cheap store butter. At the lower prices now prevailing and the scarcity of dairies and low grades, I would advocate increasing this minimum number of cows to at least 400; for, whereas creamery butter could well afford a manufacturing cost of 4 cents

per pound when worth 18 cents, while common grades were worth 6 to 8 cents, at 14 cents for the best creamery and common grades wanted at 7 to 10 cents, no such expense is justifiable. I wish to call the attention of the merchants in the rural districts, whom this report will reach, to the fact that a creamery without enough cows to furnish an economical run will prove a failure, and that, whereas a prosperous creamery benefits the business men fully as much as the farmers, one that fails injures them fully as much. If they do not lose their money in the venture it throws discredit on their village, and it is better not to attempt the reckless experiment of trying to start one without plenty of cows in sight. To further emphasize this caution, I cite 100 failures of creameries in this state (within my recollection) that have occurred during the past ten years, though this list does not anywhere near represent all such failures within this time and territory.

## THE UNFORTUNATE PLACES.

Foley,	Hallock,	Hastings,
Young America,	Ada,	Rochester,
Moorhead,	Parkers Prairie,	Cologne,
Alexandria,	St. Hilaire,	Hitterdahl,
Wanamingo,	Crookston,	Claremont,
Elbow Lake,	Pipestone,	Osakis,
Balatan,	St. Cloud,	Whalen,
Marshall,	Belgrade,	Blooming Prairie,
Arimet,	Brooten,	Kenyon,
Auburn,	Benson,	Waseca,
Elmore,	Swift Falls,	Audubon,
Petterson,	Lake City,	Detroit,
Hokah,	Montrose,	Ortonville,
Cambridge,	Canby,	Springfield,
Jackson,	Glenwood,	Windom,
Heron Lake,	Morris,	Mountain Lake,
Lac qui Parle,	Caledonia,	Royalton,
Kasota,	Fillmore,	Pleasant Grove,
Waterville,	Tintah,	McIntosh,
Lake Benton,	Bear Valley,	Redwood Falls,
Welcome,	Marine,	Lamberton,
East Chain,	Antrim,	Hector,
Warren,	Cereal,	Clear Lake,
Fulda,	Rockford,	Owatonna,
Rushmore,	Pelican Lake,	<b>Avon,</b>
Adrian,	Wadena,	Richmond,
Hendrum,	Canton,	Sauk Centre,
Fairmont,	Lanesboro,	Otisco,
Rich Prairie,	Whalen,	Janesville,
Hadley,	Wells,	Pickwick,
Current Lake,	Lakefield,	Wood Lake,
Taopi,	Tracy,	Viola,
High Forest,	Gibbons,	Garden City,
Gaylord,	Hutchinson,	Stewart,
Elk River,	Litchfield,	

All of these failures cannot be attributed to any one cause; neither have such failures in every instance entirely ruined the in-



dustry at such places, as it may be noticed that, at a few places, on the ruins some of our most prosperous creameries have been established. Notice among them Owatonna, Litchfield, Blooming Prairie, and some others. The cause of the majority of the above failures can be credited to the work of shark creamery promoters inducing the people, by misrepresentation, to engage in the business on a large scale where there were no cows to supply the necessary raw material. Many of them failed through incompetent management; some by employing incompetent makers, and some by operating the inferior machinery which was loaded onto them. The percentage of failures in this business is simply startling, and justifies my calling attention to the main causes that have and will again invite failure.

#### BUILDING NEW CREAMERIES.

Within the past two years nearly every locality that was fortunate enough to have the required number of cows conveniently near, has built a creamery. These dairy centers have pulled hard on the outside neighborhoods for cows, so at this time there are very few localities in this state that, under present conditions and circumstances, can hope to support a successful creamery. I look to see very few built during the next two years. A few localities ventured to build this year where cows were scarce, hoping or expecting they would appear like a Russian thistle or perhaps the army worm; but while those enemies we detest and pray against are always appearing, the friends we desire and pray for seldom appear, and a failure has invariably resulted. Cows do not come by magic, neither do they breed or mature as rapidly as rats. They increase but slowly at best, and when everybody wishes to buy no one will sell them.

#### SEPARATORS.

I called attention in my former report to the excessive price charged for separators; but notwithstanding nearly every class of machinery, article of use or ornament, and all produce, including butter, has been reduced in price, no reduction has been made in the price of first-class separators. True, they have been greatly improved, and new machines of greatly increased capacity placed on the market, and competition appears to be very sharp, but the price remains unchanged. The times, it would appear to me, demands a separator that can be operated on the farm with a cheap convenient power, to handle the milk of from ten to thirty cows; a machine that can be sold complete for about seventy-five dollars. I have no doubt but that such a machine would

meet with great favor, and would solve many of the most vexed problems of our dairymen,—including time to deliver the milk to the creamery, division of the skim milk, caring for large quantities of milk, quality of the skim milk for feeding purposes, expense of manufacturing the product, large outlay for cans and repairs and Sunday operating,—without detracting from the quality of the product. I again call the attention of our dairymen to the fact that the separator is the important machine of the creamery or dairy, and that the safe guarantee for it does not lie in the over-zealous representations of the manufacturer or dealer in them, but in the machine itself; and the only safe way is to purchase it subject to approval, with a sufficient allowance of time to ascertain the kind of work it will do. Its value should be judged on the following basis: Cleanliness of skimming; quality of cream; its capacity in proportion to its cost; durability; cost of power to operate; cost of repairs, and character of work done, under probable unfavorable conditions.

#### OUR REPUTATION.

It would probably be presuming too much to claim that we produce the best butter in the world, and might open up another international controversy, which would be undesirable, but we can boast of holding the championship of the United States, and this market is the most exacting as well as the best on earth. It is also extensive enough for us if we can but completely capture it. These recent laurels are not the only ones we have won of a national character, as those remembering our standing at the New Orleans exhibition can testify. We shall expect in the future to be near the front, if not always in the lead, in the quality of our butter. There is no doubt that at least a part of the superior quality of our butter is due to the latitude in which it is produced, as it is well known that nearly all products of a northern latitude are superior in quality to the southern productions, whether they be butter, eggs, vegetables, fruit, cereals, meats, fish or furs. This natural advantage we are thankful for and purpose to utilize.

#### LOW PRICES OF BUTTER.

The low price of butter the past season should encourage rather than discourage the Minnesota dairymen, as it has surely hastened the time when this part of the country will supply the East, Middle, and Southern States with butter. This means the very best system of diversified farming here, with greater profits

sure to follow. Although prices ranged very low, they compared favorably with prices of all other productions; were sure, and came when most needed. I do not apprehend that prices will go below the cost of production for any extended period in the near future.

#### THE FILLED CHEESE LAW.

The passage of a national filled cheese law is of greater importance to the butter than to the cheese producers of this state, from the fact that our cheese product is almost entirely consumed within the state, and we have state laws absolutely prohibiting the manufacture or sale of filled cheese in this state, whereas this fraud in other states was crowding out legitimate cheese, lessening the consumption of all kinds, and forcing those engaged in its production into producing butter, thus almost immediately throwing the product of thousands of cows from cheese to butter production, greatly to the loss of the butter producer. This unexpected source of competition had considerable to do with reducing the price of butter. Consequently, as the dairymen had succeeded, by agitation, in bringing before congress several propositions for a national law, I was dispatched to Washington to interest and aid our members of that body, towards the passage of such a measure as was most likely to accomplish what our dairymen needed,—protection from this unfair, unrighteous fraud. I found all our members easy of approach on this subject, they at once becoming earnest workers in the cause. Congressman Tawney took the lead, and having charge of the measure before the ways and means committee, where the most effective work was done, he finally had the honor of drafting the successful bill, and coaching it through all the dangerous places to a final triumph.

#### OUR DAIRY LAWS.

I think we are in need of some additional laws under this heading, as well as some changes in the laws we now have. We should have a law giving this department more supervision over our creameries, whereby we could provide some system of regulating them with respect to their sanitary surroundings and condition, also as to the qualifications of their operators, copying to a great extent after the Canadian laws in this respect. If the grounds of public health or expediency would not warrant such a law, the general prosperity of our people and state, it seems to me, would.

Chapter 247, General Laws of 1889, should be so amended as to more plainly state what shall be considered illegal milk, unfit to be manufactured into butter or cheese. It should also make the party receiving illegal milk equally guilty with the party offering it for delivery. The fines throughout this chapter should be so reduced that all cases coming under this law would be within the jurisdiction of a justice of the peace, making the enforcement of the law easy and the penalties for its violation reasonable. Our dairy laws should be enforced firmly, but with mildness and considerable charity, as the guilt is occasioned generally by carelessness, rather than with bad intentions. The officer can generally better enforce the observance of such laws by giving proper instructions than by prosecution, though the latter will, at times, have to be resorted to. With our present large number of creameries, it would require several experienced dairymen to properly inspect them and enforce the laws, and, considering the magnitude and importance of this industry, this state can well afford to furnish such officers.



## PART III.

## REPORT OF E. N. EATON, M. SC., STATE CHEMIST.

Hon. Berndt Anderson, Minnesota Dairy and Food Commissioner,

Sir: The following report of the work of the chemist during the biennial period ending July 31, 1896, is respectfully submitted. To economize space, much of the report is presented in tabular form. As Minnesota was one of the pioneers in attempting to suppress fraud in the manufacture and sale of food products,—and, without exaggeration, may be said to still occupy that position, for less than half a dozen states have passed adequate laws governing the sale of food products,—the work of the department has been, and is to-day, in part educational, although our laws are mandatory and penal.

In former reports the description and properties of foods regulated by the laws of the state have been very completely given. It will be unnecessary to repeat in old or new phraseology this educational work. I have thought it advisable, however, in view of the recent contributions to our knowledge of the hygienic relations of the residues in alum and alum phosphate baking powders, and the exhaustive inspection and analyses of baking powders sold in our own state, to report *in extenso* on this article. Ninety-four complete or partly complete analyses of different brands of baking powder were made during the last year. This examination is the most extensive yet made, and, with the exception of those made by the United States Department of Agriculture, the most complete. The only other investigations of importance were the analyses of thirty-two baking powders by the chemical division of the United States Department of Agriculture in 1887, and the more or less complete analyses of fifty-four different baking powders by the department of internal revenue, Canada, in 1888. Those inspected in Canada were mostly of Canadian manufacture, while the brands examined by the department of agriculture were taken in Washington, D. C., and are even in the East now largely superseded by other brands.

In view of our inadequate standard for "full cream cheese," the propriety of raising the standard to fifty per cent of fat to solids is again discussed.

It seems like threshing old straw to again present an article on milk; yet, as often as this subject has been forced before the attention of the people, its hygienic and economic importance is greatly underestimated, while conditions governing its production and sale in cities are unknown and unappreciated by dairymen and public alike. It is believed that a careful reading of the article "Marketable Milk," will indicate to the dairyman what he is required to deliver and to the consumer what he is entitled to receive for pure milk.

To my mind, there is no more important consideration connected with food investigation than the proper nourishment of infants. And the selection of suitable and nutritious food for invalids is second only in importance. The discussion of "Infants' and Invalids' Foods" embodied in this report, and the accompanying tables of analyses, will, I hope, be examined with profit by those interested.

The range of foods examined during the last two years has been somewhat extended over that of previous years. This has been owing to additional food legislation, pioneer and educational work, and the large number and variety of samples of food sent in by citizens of the state—and not by authorized inspectors.

This consideration and the fact that much more time is naturally consumed in making complete analyses (especially is this true in the determinations involved in the complete analysis of baking powder) are factors responsible for the less number of samples analyzed than in previous years; yet the number of adulterated samples is larger this biennial period than usual.

The percentage of adulteration found in each food is not given, for the reason that, as discrimination was used in the collection of samples, such figures would be of no value in showing the extent of food adulteration in the state.

## RÉSUMÉ.

	No. of Samples Analyzed.	No. of Samples Adulterated.	No. of Samples Pure
Allspice .....	1	...	1
Baking powder .....	106	70	36
Breakfast food.....	1	...	1
Butter .....	21	...	21
Butter colors.....	2	2	...
Canned corn.....	2	...	2
Canned tomatoes .....	2	...	2
Cheese .....	43	7	36
Cider .....	2	1	1
Cloves .....	1	...	1

Articles of Food, Etc.	No. of Samples Analyzed.	No. of Samples Adulterated.	No. of Samples Pure.
Cinnamon (Cassia) .....	3	...	3
Coffee .....	1	...	1
Cream .....	10	5	5
Cream of tartar.....	2	2	...
Comb honey.....	4	...	4
Extracted honey.....	71	19	52
Ginger .....	4	2	2
Infant foods, prepared.....	2	...	2
Invalid foods, prepared.....	3	1	2
Cokernut butter.....	1	...	1
Lactage .....	1	...	1
Lard .....	134	76	58
Malt extract.....	14	...	14
Maple syrup .....	2	2	...
Milk .....	174	73	101
Mustard.....	4	2	2
Oleomargarine .....	6	6	...
Preservatives .....	3	3	...
Pepper .....	6	2	4
Sorghum .....	1	...	1
Syrup .....	1	...	1
Sugar .....	1	1	...
Vinegar .....	577	413	164
Whisky .....	1	...	1
Wine .....	2	2	...
Totals .....	1,209	689	520

## MILK.

The time has passed when any fluid secreted by the cow, to which nothing has been added and from which nothing has been taken, is called pure milk. To-day we not only require a certain standard of composition, but the milk must be clean and wholesome, and the cow from which it is produced kept in a healthy condition in sanitary surroundings. In some places standards are adopted to protect the dairyman against the physical inefficiency of his cows; in other places, to protect the consumer against adulterated and worthless milk. It is unquestionably true that milk may be drawn from a cow so deficient in nutritive properties as to endanger the health of any person relying on it as a sole food. The statutes of Minnesota, as of many other states of the Union, aim to insure to the consumer milk of fair average quality. Obviously a standard based on the composition of the poorest normal milk would not attain the end sought.

It is necessary to base such standard on the average composition of milk produced in the locality in which such standard is to be enforced. If, in any locality, milk is exceptionally poor, owing to unprofitable cows, inadequate feed or insufficient care, such standard should be high enough to furnish an inducement to improve the quality. In this connection it may be interesting to give the average composition of milk as found by observers in different parts of the world.

By Prof. L. L. Van Slyke—Factory Milk—New York:	
Water .....	87.28
Total solids .....	12.72
Fat .....	3.77
Casein .....	2.48
Albumen .....	.69
Sugar, ash, etc. ....	5.78
By Prof. A. E. Shuttleworth—Factory Milk—Canada:	
Water .....	87.63
Total solids .....	12.37
Fat .....	3.60
Casein .....	2.27
Albumen .....	.84
Sugar, ash, etc. ....	5.64
By Professor Babcock—Wisconsin:	
Fat .....	3.50
Milk serum—	
Nitrogenous matter .....	4.20
Milk sugar .....	4.50
Ash .....	.70
Water .....	87.00
Total solids .....	13.00
By Dr. Wiley, Chemist United States Department of Agriculture—Washington, D. C.:	
Water .....	86.90
Fat .....	4.00
Sugar .....	4.80
Proteids .....	3.60
Ash .....	.70
Total solids .....	13.10
Dr. Vieth—England—120,540 samples:	
Total solids .....	12.90
Solids not fat .....	8.80
Fat .....	4.10
H. Droop Richmond—England, 1895:	
Specific gravity .....	103.22
Solids .....	12.66
Fat .....	3.84
Solids not fat .....	3.82

The legal definition of milk is in the different states and countries as follows:

	Fat.	Solids	
		Solids.	Not fat.
Iowa .....	3.00	.....	.....
Maine (gravimetric analysis) .....	3.00	12.00	.....
Massachusetts .....	.....	13.00	9.30
Massachusetts, in May and June .....	.....	12.00	.....
Michigan .....	3.00	12.50	.....
Minnesota .....	3.50	13.00	.....
New Hampshire .....	.....	13.00	.....
New Jersey .....	.....	12.00	.....
New York .....	3.00	12.00	.....
Ohio .....	.....	12.50	.....
Ohio, in May and June .....	.....	12.00	.....
Oregon .....	3.00	12.00	.....
Pennsylvania .....	3.00	12.50	.....
Vermont .....	.....	12.50	9.25
Vermont, in May and June .....	.....	12.00	.....
Wisconsin .....	3.00	.....	.....
England, (Somerset House) .....	2.75	.....	8.50
Paris .....	2.70	11.50	.....
Berne .....	3.50	12.50	.....



Ohio requires one-fourth of the solid material of milk to be fat, while Pennsylvania and Michigan limit the specific gravity between 1,029 and 1,033, inclusive. Oregon requires the specific gravity of the milk serum, that is, of the milk after removal of the fat, to be at least 1,035.

Those standards based on the percentage of fat are most satisfactory in dealing with partially skimmed milk; those based on the solids not fat in case of watered milk; while a standard for both fat and solids is very convenient in preventing the sale of abnormal and non-nutritious milk.

The English standard is absurdly low, its aim being to admit all milk secreted by the cow. Continuous agitation of the subject has awakened public interest. A special committee of the house of commons appointed to revise the dairy and food laws has recommended that the standard be raised. It was remarked by an English judge during the progress of a prosecution for selling adulterated milk, "that the standard of the analyst was that of Somerset House, and any cow that gave milk of this standard would die of disgust."

Although our standard for fat is as high as that of any other state, it is still lower than the average percentage of fat in other places, and far lower than the average in Minnesota. The standard for solids, while relatively higher than the standard for fat, and for that reason enlisting less attention, is still almost the average of all milk sold in the city of St. Paul, including skimmed and watered milk. It is no higher than the average per cent of total solids found in other states,—thus:

The Massachusetts State Board of Health find.....	13.25
The New York Experiment Station.....	13.64
The Massachusetts Experiment Station.....	13.47
The Maine Experiment Station.....	13.23
The Connecticut Experiment Station.....	12.99
The Worlds Fair ninety-day test, average.....	13.41

Other authorities might be given, but the evidence would be simply cumulative and could not much more firmly establish the fact that average milk contains at least thirteen per cent of total solids.

Milk is sometimes of inferior quality, and when a high standard is in force, if this fact is not taken into consideration, an injustice may be done some honest and conscientious milkman.

Richmond examined for the Aylesbury Dairy Company in London, England, during the year 1895, 24,662 samples of milk. The average of 11,081 received from farms for each month in the calendar year is given in Table I.; solids calculated by Richmond's formula; fat by the Leffman-Beam method.

TABLE I.

Month.	Specific Gravity.	Solids.	Fat.	Solids, Not Fat.
January .....	1.0324	12.95	4.05	8.90
February .....	1.0325	12.94	4.02	8.92
March .....	1.0325	12.68	3.80	8.88
April .....	1.0323	12.68	3.84	8.84
May .....	1.0325	12.57	3.70	8.87
June .....	1.0321	12.36	3.60	8.76
July .....	1.0317	12.33	3.66	8.67
August .....	1.0316	12.38	3.72	8.66
September .....	1.0319	12.41	3.71	8.70
October .....	1.0323	12.91	4.04	8.87
November .....	1.0324	12.92	4.03	8.89
December .....	1.0326	12.80	3.89	8.91

In the enforcement of our dairy laws a large number of samples of milk are examined from various localities in the state. The milk taken in the city of St. Paul was carefully and correctly sampled by Inspector S. M. West, who also made the examination under my own supervision. All instruments used were standardized, and all tubes, pipettes, and bottles calibrated. The results were corrected for the constant small errors found. The fat determinations were made with the Babcock test, and the solids and solids not fat calculated by use of the latest formula proposed by Professor Babcock. The figures for solids are uniformly fourteen-hundredths less than those obtained by use of Richmond's formula, but are probably more correct for Minnesota milk. The averages are based on wagon milk only, and do not include samples taken from the train (shipped from outside points) nor from stores.

The number of samples analyzed and the average per month is given in Table II. It should be remembered that these samples include all wagon milk sampled during the time covered, and include illegal, skimmed, and watered milk.

TABLE II.—AVERAGE PER MONTH.

Month.	No. of Samples.	Specific Gravity.	Fat.	Solids, Not Fat.	Total Solids.
September, 1895.....	82	1,031.6	4.248	8.79	12.94
October, 1895.....	126	1,032.7	4.200	9.03	13.21
November, 1895.....	125	1,032.7	3.952	9.02	12.89
December, 1895.....	141	1,032.0	3.743	8.86	12.68
April, 1896.....	41	1,032.1	3.805	8.70	12.37
May, 1896.....	95	1,032.3	3.925	8.93	12.83
July, 1896.....	124	1,032.0	3.924	8.72	12.66
August, 1896.....	53	1,031.5	3.762	8.79	12.55
September 1896.....	19	1,031.9	3.811	8.71	12.60

Averages are sometimes misleading. Figures derived in this way are extremely useful when applied with a knowledge of their limitations, but without a realization of their infirmities may easily lead to erroneous conclusions. For example, an employer may

overpay one man twenty dollars per month and underpay another by the same amount. While he might average to pay good wages to his workingmen, he would not be dealing fairly with them. So, in considering a standard for so variable an article as milk, it is well to know the extremes of variation, and still better to know the individual composition of the samples from which averages are obtained. This is shown in the individual milkmen's record.

To the interested observer this record will show the influence of season on the composition of milk, the relative constancy of the solids not fat in normal milk, and also the quality of milk the public have a right to expect to receive.

To the dairymen it will illustrate the effects of breed and feed, and care and shelter, on the composition of milk. It may also show the necessity of weeding out the profitless animals.

To the dairy commission it will aid in showing whether milk from a given dairy is illegal on account of the moral delinquency of the milkman, or whether the cow is *particeps criminis* in the case.

TABLE III.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
Jackson Dairy.....	Sept. 4, 1895	1,031½	3.80	8.37	12.17
Jackson Dairy.....	Sept. 4, 1895	1,031½	4.40	8.49	12.89
Jackson Dairy.....	Nov. 24, 1895	1,034	3.50	9.22	12.72
Jackson Dairy.....	Dec. 31, 1895	1,032	3.80	8.77	12.57
Jackson Dairy.....	April 22, 1896	1,033	4.60	8.94	13.54
Jackson Dairy.....	April 22, 1896	1,031	3.80	8.27	12.07
Jackson Dairy.....	Aug. 21, 1896	1,033	3.60	8.73	12.33
Jackson Dairy.....	Aug. 21, 1896	1,033½	3.40	8.79	12.19
J. A. Bearth.....	Sept. 4, 1895	1,034	4.00	9.06	13.06
J. A. Bearth.....	Sept. 4, 1895	1,034	3.80	9.02	12.82
J. A. Bearth.....	Dec. 5, 1895	1,033	4.00	9.06	13.06
J. A. Bearth.....	Dec. 5, 1895	1,033	4.00	9.06	13.06
J. A. Bearth.....	April 14, 1896	1,032	3.80	8.52	12.32
J. A. Bearth.....	April 14, 1896	1,033½	3.40	8.75	12.15
P. Spreigel.....	Sept. 4, 1895	1,026½	4.40	7.28	11.68
P. Spreigel.....	Sept. 4, 1895	1,029½	4.60	8.03	12.63
P. Spreigel.....	Dec. 21, 1895	1,030	3.20	8.15	11.35
P. Spreigel.....	Dec. 21, 1895	1,032	3.00	8.61	11.61
P. Spreigel.....	April 27, 1896	1,030	3.20	7.89	11.09
P. Spreigel.....	April 27, 1896	1,030	3.00	7.85	10.85
P. Spreigel.....	May, 1896	1,030	4.60	8.43	13.03
P. Spreigel.....	May, 1896	1,030	4.40	8.39	12.79
P. Spreigel.....	Sept., 1896	1,031½	3.60	8.53	12.18
P. Spreigel.....	Sept., 1896	1,028½	4.00	7.91	11.91
Charles Smith.....	Sept. 4, 1895	1,029½	3.80	7.87	11.67
Charles Smith.....	Sept. 4, 1895	1,030½	4.60	8.29	12.89
Charles Smith.....	Nov. 12, 1895	1,032	4.00	8.81	12.81
Charles Smith.....	May 5, 1896	1,032	3.40	8.94	12.34
A. W. Durose.....	Sept. 4, 1895	1,032½	4.60	8.78	13.38
A. W. Durose.....	Sept. 4, 1895	1,029½	3.60	7.83	11.43
A. W. Durose.....	Nov. 12, 1895	1,031	3.40	8.44	12.84
A. W. Durose.....	Nov. 12, 1895	1,031	4.00	8.56	12.56
A. W. Durose.....	Nov. 21, 1895	1,028½	3.40	7.79	11.19
A. W. Durose.....	April 22, 1896	1,033	4.40	8.90	13.30
A. W. Durose.....	April 22, 1896	1,032	4.00	8.56	12.56
A. W. Durose.....	Aug. 4, 1896	1,032½	4.00	9.16	13.16
A. W. Durose.....	Aug. 4, 1896	1,028	5.00	8.26	13.26



TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
H. Fruetel.....	Sept. 4, 1895	1,034½	4.00	9.16	13.16
H. Fruetel.....	Sept. 4, 1895	1,032½	3.60	8.58	12.18
H. Fruetel.....	May 15, 1896	1,033	3.80	9.28	13.08
H. Fruetel.....	May 15, 1896	1,034	3.60	9.49	13.09
H. Fruetel.....	July 16, 1896	1,033	4.00	9.32	13.32
H. Fruetel.....	July 16, 1896	1,032	4.00	9.06	13.06
H. Fruetel.....	Aug. 21, 1896	1,033	3.60	8.98	12.58
H. Fruetel.....	Aug. 21, 1896	1,033½	3.20	9.00	12.20
A. Swanson.....	Sept. 5, 1895	1,032	3.60	8.48	12.08
A. Swanson.....	Sept. 5, 1895	1,032	3.80	8.52	12.32
A. Swanson.....	Sept. 18, 1895	1,033	4.60	9.19	13.79
A. Swanson.....	Sept. 18, 1895	1,033	3.60	8.98	12.58
B. Dixon.....	Sept. 5, 1895	1,032	4.80	8.72	13.52
B. Dixon.....	Sept. 5, 1895	1,033½	3.80	8.87	12.67
B. Dixon.....	Sept. 5, 1895	1,035½	3.60	9.34	12.94
B. Dixon.....	Oct. 25, 1895	1,034	4.80	9.48	14.28
B. Dixon.....	Oct. 25, 1895	1,034	3.00	8.86	11.86
Ole Nelson.....	Sept. 5, 1895	1,030	3.60	8.23	11.83
Louis Bucson.....	Sept. 5, 1895	1,035½	3.60	9.34	12.94
Louis Bucson.....	Sept. 5, 1895	1,035	5.00	9.52	14.52
Louis Bucson.....	Nov. 1, 1895	1,033	4.00	9.06	13.06
Louis Bucson.....	Nov. 1, 1895	1,034	4.40	9.40	13.80
Louis Bucson.....	Dec. 10, 1895	1,033½	4.00	9.16	13.16
Louis Bucson.....	Dec. 10, 1895	1,034½	4.40	9.80	14.20
Peterson Bros.....	Sept. 5, 1895	1,033	4.40	8.90	13.30
Peterson Bros.....	Sept. 5, 1895	1,034	3.50	8.96	12.46
S. Mattson.....	Sept. 5, 1896	1,033	4.60	8.94	13.54
S. Mattson.....	Sept. 5, 1896	1,034	4.00	9.06	13.06
S. Mattson.....	May 13, 1896	1,034	3.20	9.13	12.33
S. Mattson.....	May 13, 1896	1,034	3.60	9.24	12.84
H. Schroeder.....	Sept. 7, 1895	1,031	4.00	8.56	12.56
H. Schroeder.....	Nov. 30, 1895	1,033	4.00	9.15	13.15
H. Schroeder.....	Nov. 16, 1895	1,033	4.40	9.15	13.55
H. Schroeder.....	Nov. 16, 1895	1,033	4.60	9.19	13.79
H. Schroeder.....	May 8, 1896	1,033	4.00	9.06	13.06
H. Schroeder.....	May 8, 1896	1,032	4.40	8.90	13.30
H. Schroeder.....	May 15, 1896	1,032	4.60	8.94	13.54
H. Schroeder.....	May 15, 1896	1,031	5.20	8.81	14.01
H. Schroeder.....	April 14, 1896	1,030½	4.60	8.30	12.90
H. Schroeder.....	July 22, 1896	1,031	4.40	8.64	13.04
H. Schroeder.....	July 22, 1896	1,032	4.50	8.92	13.42
O. Fletheim.....	Sept. 7, 1895	1,032	6.00	9.23	15.23
O. Fletheim.....	Sept. 7, 1895	1,031	5.20	8.81	14.01
O. Fletheim.....	Nov. 16, 1895	1,033	3.60	8.98	12.58
O. Fletheim.....	Nov. 16, 1895	1,031	4.40	8.64	13.04
O. Fletheim.....	May 5, 1896	1,032	3.20	8.65	11.85
O. Fletheim.....	May 5, 1896	1,033	5.00	9.27	14.27
O. Fletheim.....	July 16, 1896	1,032	3.60	8.73	12.33
O. Fletheim.....	July 16, 1896	1,033½	3.50	8.71	12.21
Bragg's Dairy.....	Sept. 7, 1895	1,029	6.40	8.57	14.97
Bragg's Dairy.....	Sept. 7, 1895	1,033	3.40	8.94	12.34
Bragg's Dairy.....	May 8, 1896	1,033	4.40	9.15	13.55
Bragg's Dairy.....	May 8, 1896	1,035	3.00	9.36	12.36
Bragg's Dairy.....	July 16, 1896	1,031	4.40	8.64	13.04
Bragg's Dairy.....	July 16, 1896	1,033	4.50	9.17	13.67
P. J. Keough.....	Sept. 7, 1895	1,033	3.60	8.98	12.58
P. J. Keough.....	Sept. 7, 1895	1,032	3.60	8.73	12.33
P. J. Keough.....	April 15, 1896	1,033	3.60	8.98	12.58
P. J. Keough.....	Aug. 20, 1896	1,032	4.00	8.91	12.91
Minnesota Milk Co.....	Sept. 7, 1895	1,031	6.80	9.18	15.98
Minnesota Milk Co.....	Sept. 7, 1895	1,029	3.20	7.89	11.09
Minnesota Milk Co.....	Oct. 15, 1895	1,032	5.00	9.02	14.02
Minnesota Milk Co.....	Oct. 29, 1895	1,034	5.00	9.52	14.52
Minnesota Milk Co.....	Oct. 29, 1895	1,035	3.80	9.53	13.33
Minnesota Milk Co.....	Oct. 29, 1895	1,033	3.80	9.02	12.82
Minnesota Milk Co.....	Oct. 29, 1895	1,035	4.40	9.66	14.06
Minnesota Milk Co.....	Oct. 29, 1895	1,033	4.00	9.06	13.06



TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
Minnesota Milk Co.....	Nov. 14, 1895	1.031	5.00	8.73	13.76
Minnesota Milk Co.....	Nov. 14, 1895	1.032	5.00	9.02	14.02
Minnesota Milk Co.....	Nov. 19, 1895	1.026½	3.40	7.28	10.68
Minnesota Milk Co.....	Nov. 19, 1895	1.031	3.60	8.48	12.08
Minnesota Milk Co.....	Nov. 19, 1895	1.029	3.80	8.02	11.82
Minnesota Milk Co.....	Nov. 21, 1895	1.034	3.40	9.20	11.60
Minnesota Milk Co.....	Nov. 21, 1895	1.034½	3.60	9.34	12.94
Minnesota Milk Co.....	Nov. 21, 1895	1.031	3.40	8.44	11.84
Minnesota Milk Co.....	Nov. 23, 1895	1.033	3.40	8.94	12.34
Minnesota Milk Co.....	Dec. 3, 1895	1.033	5.00	9.27	14.27
Minnesota Milk Co.....	Dec. 13, 1895	1.031	4.60	8.68	13.34
Minnesota Milk Co.....	Dec. 13, 1895	1.031	3.60	8.48	12.08
Minnesota Milk Co.....	Dec. 13, 1895	1.031	4.60	8.68	13.28
Minnesota Milk Co.....	Dec. 13, 1895	1.030	4.40	8.39	12.79
Minnesota Milk Co.....	Dec. 13, 1895	1.031	3.60	8.48	12.08
Minnesota Milk Co.....	Dec. 14, 1895	1.033	3.80	9.02	12.82
Minnesota Milk Co.....	Dec. 14, 1895	1.033	4.00	9.06	13.06
Minnesota Milk Co.....	Dec. 14, 1895	1.032	4.00	8.81	12.81
Minnesota Milk Co.....	Dec. 18, 1895	1.030	3.40	8.19	11.59
Minnesota Milk Co.....	Dec. 18, 1895	1.031	3.40	8.44	11.84
Minnesota Milk Co.....	May 12, 1896	1.033	3.00	8.86	11.86
Minnesota Milk Co.....	May 12, 1896	1.034	3.60	9.24	12.84
Minnesota Milk Co.....	May 27, 1896	1.034	3.00	9.11	12.11
Minnesota Milk Co.....	May 27, 1896	1.035	2.40	9.24	11.64
Minnesota Milk Co.....	July 9, 1896	1.033	4.00	9.06	13.06
Minnesota Milk Co.....	July 9, 1896	1.035	3.20	9.41	12.61
Minnesota Milk Co.....	July 16, 1896	1.032	3.00	8.61	11.61
Minnesota Milk Co.....	July 16, 1896	1.030	5.00	8.51	13.51
Minnesota Milk Co.....	July 28, 1896	1.033	5.00	9.27	14.27
Minnesota Milk Co.....	July 28, 1896	1.033	3.60	8.73	12.33
Minnesota Milk Co.....	Aug. 20, 1896	1.034	4.00	9.06	13.06
Minnesota Milk Co.....	Aug. 20, 1896	1.033½	3.80	9.12	12.92
Minnesota Milk Co.....	Sept. 8, 1896	1.032	3.40	8.60	12.09
E. Richter.....	Sept. 7, 1895	1.033	4.20	9.11	13.31
E. Richter.....	Nov. 25, 1895	1.033	3.40	8.94	12.34
E. Richter.....	Nov. 25, 1895	1.033	4.20	9.11	13.31
E. Richter.....	July 21, 1896	1.031	4.00	8.56	12.56
E. Richter.....	July 21, 1896	1.031	4.00	8.56	12.56
E. Richter.....	Aug. 4, 1896	1.032½	3.60	8.83	12.43
E. Richter.....	Aug. 4, 1896	1.033	3.60	8.98	12.58
J. Gobely.....	Sept. 7, 1895	1.029	6.60	8.57	15.17
J. Gobely.....	Dec. 3, 1895	1.032	4.00	8.81	12.81
J. Gobely.....	Dec. 3, 1895	1.033	3.60	8.98	12.58
J. Gobely.....	April 14, 1896	1.033	3.40	8.60	12.09
J. Gobely.....	April 14, 1896	1.031	4.50	8.41	12.91
J. Gobely.....	May 21, 1896	1.033	4.00	9.06	13.06
J. Gobely.....	May 21, 1896	1.033	4.00	9.06	13.06
J. Gobely.....	July 7, 1896	1.033	4.40	9.15	13.55
J. Gobely.....	July 7, 1896	1.034	3.80	9.28	13.08
T. Torgeson.....	Sept. 18, 1895	1.032	4.60	8.94	13.54
T. Torgeson.....	Sept. 18, 1895	1.033	4.80	9.23	14.03
A. Gustafson.....	Sept. 18, 1895	1.031	7.60	9.28	16.88
A. Gustafson.....	Sept. 18, 1895	1.034	3.80	9.28	13.08
A. Gustafson.....	Oct. 25, 1895	1.034	3.80	9.28	13.08
A. Anderson.....	Sept. 18, 1895	1.034	4.20	9.36	13.56
A. Anderson.....	Sept. 18, 1895	1.033	4.20	9.11	13.31
M. J. Klaus.....	Sept. 18, 1895	1.033	3.60	8.98	12.58
M. J. Klaus.....	Sept. 18, 1895	1.034	4.00	9.32	13.32
C. Anderson.....	Sept. 18, 1895	1.034	3.60	9.24	12.84
C. Anderson.....	Nov. 6, 1895	1.034	4.40	9.40	13.80
C. Anderson.....	Nov. 6, 1895	1.034	4.40	9.40	13.80
C. Anderson.....	May 5, 1896	1.032	3.60	8.73	12.33
C. Anderson.....	May 5, 1896	1.032	4.00	8.81	12.81
C. Anderson.....	July 9, 1896	1.033	3.60	8.98	12.58
C. Anderson.....	July 9, 1896	1.033	4.40	9.15	13.55
C. Anderson.....	Sept. 25, 1896	1.032	3.80	8.77	12.57

TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
C. Anderson.....	Sept. 25, 1896	1.032	4.40	8.90	13.30
M. Jackson.....	Sept. 18, 1895	1.033	4.20	9.11	13.31
Henry Boege.....	Sept. 24, 1895	1.029	3.80	8.02	11.02
Henry Boege.....	Sept. 24, 1895	1.031	3.80	8.52	12.32
J. Uldall.....	Sept. 24, 1895	1.031	5.00	8.51	13.51
J. Uldall.....	Sept. 24, 1895	1.031	4.60	8.68	13.28
D. Belar.....	Sept. 24, 1895	1.032	3.80	8.78	12.57
D. Belar.....	Sept. 24, 1895	1.031	4.00	8.86	12.56
H. Pommering.....	Sept. 24, 1895	1.033	5.00	9.27	14.27
H. Pommering.....	Sept. 24, 1895	1.031	4.60	8.68	13.28
M. Cleary.....	Sept. 24, 1895	1.033	5.00	9.27	14.27
M. Cleary.....	Sept. 24, 1895	1.031	5.00	8.76	13.76
V. Hampl.....	Sept. 24, 1895	1.032	4.40	8.90	13.30
V. Hampl.....	Sept. 24, 1895	1.031	4.60	8.68	13.28
V. Hampl.....	Oct. 3, 1895	1.033	4.40	8.90	13.30
V. Hampl.....	Oct. 3, 1895	1.031	5.20	8.81	14.01
V. Hampl.....	July 29, 1896	1.032	4.00	8.81	12.81
V. Hampl.....	July 29, 1896	1.033½	4.00	9.16	13.16
T. Schmidt.....	Sept. 25, 1895	1.033	3.20	8.90	12.10
T. Schmidt.....	Sept. 25, 1895	1.031	3.80	8.52	12.32
T. Schmidt.....	Oct. 15, 1895	1.032	4.00	8.81	12.81
T. Schmidt.....	Oct. 15, 1895	1.032	3.30	8.67	11.97
T. Schmidt.....	Nov. 30, 1895	1.032	3.20	8.65	11.85
T. Schmidt.....	April 14, 1896	1.031½	4.00	8.45	12.45
T. Schmidt.....	April 14, 1896	1.032	4.20	8.60	12.80
T. Schmidt.....	May 8, 1896	1.033	4.00	9.06	13.06
T. Schmidt.....	May 8, 1896	1.031	4.00	8.56	12.56
T. Schmidt.....	July 10, 1896	1.032	4.20	8.85	13.05
T. Schmidt.....	July 10, 1896	1.032	4.00	8.81	12.81
T. Schmidt.....	Dec. 21, 1895	1.032	3.20	8.40	11.60
T. Schmidt.....	Dec. 21, 1895	1.030	3.20	8.15	11.25
F. Linderman.....	Sept. 25, 1895	1.033	3.60	8.98	12.58
F. Linderman.....	Sept. 25, 1895	1.033	3.60	8.98	12.58
F. Linderman.....	Nov. 14, 1895	1.032	3.80	8.77	12.57
F. Linderman.....	Nov. 14, 1895	1.033	4.00	9.06	13.06
F. Linderman.....	r. Dec. 5, 1895	1.033½	3.00	8.96	11.96
F. Linderman.....	r. Dec. 5, 1895	1.033	4.60	9.19	13.76
J. McCarty.....	Sept. 25, 1895	1.028	4.00	7.81	11.81
J. McCarty.....	Sept. 25, 1895	1.028	3.60	7.73	11.33
J. McCarty.....	Oct. 31, 1895	1.029	4.20	8.10	12.30
J. McCarty.....	Oct. 31, 1895	1.029	3.60	7.98	13.58
J. McCarty.....	July 7, 1896	1.032½	3.80	8.87	12.67
J. McCarty.....	July 7, 1896	1.034	3.60	9.24	12.84
Mrs. A. Skimpton.....	Sept. 25, 1895	1.023	2.40	6.23	8.63
L. Weber.....	Sept. 27, 1895	1.031	3.80	8.52	12.32
L. Weber.....	Sept. 27, 1895	1.032	3.60	8.73	12.33
L. Weber.....	Dec. 3, 1895	1.034	3.20	9.15	12.35
L. Weber.....	Dec. 3, 1895	1.032	3.60	8.73	12.33
L. Weber.....	May 27, 1896	1.032	4.40	8.90	13.30
L. Weber.....	May 27, 1896	1.033	3.20	8.90	12.10
L. Weber.....	July 31, 1896	1.030	4.00	8.31	12.31
H. Morgan.....	Sept. 27, 1895	1.032	4.40	8.90	13.30
H. Morgan.....	Sept. 27, 1895	1.032	4.00	8.81	12.81
H. Morgan.....	Dec. 3, 1895	1.034	4.20	9.36	13.56
H. Morgan.....	Dec. 3, 1895	1.033	3.80	9.02	12.82
H. Morgan.....	May 12, 1896	1.032	3.20	8.65	11.85
H. Morgan.....	May 12, 1896	1.033	3.40	8.69	12.09
H. Knoblauch.....	Sept. 27, 1895	1.033	4.20	9.11	13.31
H. Knoblauch.....	Sept. 27, 1895	1.033	4.00	9.06	13.06
H. Knoblauch.....	Dec. 3, 1895	1.033	3.40	8.94	12.34
H. Knoblauch.....	Dec. 3, 1895	1.031½	3.60	8.58	12.18
S. Stray.....	Sept. 27, 1895	1.028	3.40	7.69	11.09
S. Stray.....	Sept. 27, 1895	1.032	4.00	8.81	12.81
S. Stray.....	Dec. 12, 1895	1.033	3.20	8.65	11.85
S. Stray.....	Dec. 12, 1895	1.033	3.80	9.02	12.82
S. Stray.....	Dec. 21, 1895	1.032	3.00	8.36	11.36
S. Stray.....	Dec. 21, 1895	1.032	3.60	8.48	12.08

TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
S. Stray.....	May 15, 1896	1,033	4.20	8.85	13.05
S. Stray.....	May 15, 1896	1,033	4.00	8.81	12.81
S. Stray.....	July 10, 1896	1,033	4.00	8.31	12.31
S. Stray.....	July 10, 1896	1,029½	3.80	8.15	11.95
J. W. Smith.....	Sept. 27, 1895	1,032	4.40	8.64	13.74
J. W. Smith.....	Sept. 27, 1895	1,031	4.00	8.31	12.81
Frank Meyers.....	Sept. 27, 1895	1,033	4.40	9.15	13.55
Frank Meyers.....	Aug. 26, 1896	1,031½	4.00	8.66	12.66
Frank Meyers.....	Aug. 26, 1896	1,031	4.20	8.60	12.80
Isaac Mintz.....	Sept. 25, 1895	1,033	3.60	8.98	12.58
Isaac Mintz.....	Sept. 25, 1895	1,032	6.00	9.23	15.23
Isaac Mintz.....	Oct. 31, 1895	1,033	4.00	9.06	13.06
Isaac Mintz.....	Oct. 31, 1895	1,033	4.00	9.06	13.06
Isaac Mintz.....	Dec. 11, 1895	1,034	4.40	9.40	13.80
Isaac Mintz.....	Dec. 11, 1895	1,032	3.40	8.69	12.09
J. Bonnegard.....	Sept. 27, 1895	1,031	3.60	8.48	12.08
J. Bonnegard.....	Oct. 22, 1895	1,030	4.50	8.41	12.91
J. Bonnegard.....	Oct. 22, 1895	1,032	4.10	8.83	12.93
Neubacher Bros.....	Oct. 2, 1895	1,033	4.00	9.06	13.06
Neubacher Bros.....	Oct. 2, 1895	1,033	4.00	9.06	13.06
Frank Fisher.....	Oct. 2, 1895	1,034	3.40	9.20	12.60
Frank Fisher.....	Oct. 2, 1895	1,034	3.80	9.28	13.08
Frank Fisher.....	Nov. 16, 1895	1,033	3.60	8.98	12.58
Frank Fisher.....	Nov. 16, 1895	1,033	3.60	8.98	12.58
Frank Fisher.....	Dec. 21, 1895	1,033	4.00	8.06	12.06
Frank Fisher.....	May 12, 1896	1,033	4.40	9.15	13.55
O. Larson.....	Oct. 2, 1895	1,033	4.40	9.15	13.55
O. Larson.....	Oct. 2, 1895	1,032	4.60	8.95	13.54
F. Unfried.....	Oct. 2, 1895	1,029	3.80	8.02	11.82
F. Unfried.....	Oct. 2, 1895	1,034	3.80	9.28	13.08
F. Unfried.....	July 10, 1896	1,031	4.00	8.56	12.56
F. Unfried.....	July 10, 1896	1,033	3.60	8.98	12.58
F. Unfried.....	July 21, 1896	1,032	4.20	8.85	13.05
F. Unfried.....	July 21, 1896	1,031	4.00	8.56	12.56
F. Unfried.....	May 5, 1896	1,032	4.20	8.85	13.05
F. Unfried.....	May 5, 1896	1,032	4.60	8.94	13.54
J. Bergman.....	Oct. 2, 1895	1,033	4.80	8.98	13.78
J. Bergman.....	Oct. 2, 1895	1,034	5.00	9.27	14.27
J. Bergman.....	Oct. 31, 1895	1,034	4.20	9.36	13.56
J. Bergman.....	Nov. 25, 1895	1,032	4.40	8.90	13.30
J. Bergman.....	Nov. 25, 1895	1,035	3.60	9.49	13.09
J. Bergman.....	Dec. 19, 1895	1,032	4.00	8.81	12.81
J. Bergman.....	Dec. 19, 1895	1,032	4.20	8.85	13.05
J. Bergman.....	April 17, 1896	1,031	4.00	8.31	12.31
J. Bergman.....	April 17, 1896	1,031	2.80	8.06	10.86
J. Bergman.....	May 17, 1896	1,031	3.60	8.48	12.08
J. Bergman.....	May 17, 1896	1,030	4.00	8.31	12.31
J. Bergman.....	Sept. 2, 1896	1,035	3.00	9.11	12.11
Mrs. S. Olson.....	Oct. 2, 1895	1,032	4.00	8.81	12.81
J. P. Mattson.....	Oct. 8, 1895	1,034	4.40	9.40	13.80
J. P. Mattson.....	Oct. 8, 1895	1,034	4.00	9.32	13.32
L. Bearth.....	Oct. 2, 1895	1,033	5.00	9.27	14.27
L. Bearth.....	Nov. 5, 1895	1,032	4.00	8.85	13.05
L. Bearth.....	Nov. 5, 1895	1,033	4.20	9.11	13.31
L. Bearth.....	Jan. 2, 1896	1,032	4.00	8.81	12.81
L. Bearth.....	Jan. 2, 1896	1,032	4.00	8.81	12.81
L. Bearth.....	April 17, 1896	1,032	4.40	8.64	13.04
L. Bearth.....	April 17, 1896	1,032	4.40	8.64	13.04
L. Bearth.....	July 16, 1896	1,032	4.60	8.94	13.54
L. Bearth.....	July 16, 1896	1,034	4.00	9.32	13.32
L. Bearth.....	July 28, 1896	1,032	4.40	8.90	13.30
L. Bearth.....	July 28, 1896	1,033½	4.20	8.95	13.15
J. A. Johnson.....	Oct. 8, 1895	1,034	4.60	9.44	14.04
J. A. Johnson.....	Oct. 8, 1895	1,035	5.00	9.78	14.78
J. A. Johnson.....	Oct. 31, 1895	1,034	4.00	9.32	13.32
J. A. Johnson.....	Oct. 31, 1895	1,034	4.60	9.44	14.04



TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
J. A. Johnson.....	Dec. 10, 1895	1,034	3.60	9.24	12.84
J. A. Johnson.....	Dec. 10, 1895	1,034	5.00	9.52	14.52
Capital City Dairy.....	Oct. 8, 1895	1,033	3.40	8.94	12.34
Capital City Dairy.....	Oct. 8, 1895	1,033	5.20	9.31	14.51
Capital City Dairy.....	Nov. 1, 1895	1,033	5.00	9.27	14.27
Capital City Dairy.....	Nov. 1, 1895	1,035	4.60	9.70	14.30
Capital City Dairy.....	Dec. 10, 1895	1,030½	5.00	8.61	13.61
Capital City Dairy.....	Dec. 10, 1895	1,032	3.20	8.65	11.85
Capital City Dairy.....	Dec. 10, 1895	1,033½	5.00	9.37	14.37
Capital City Dairy.....	May 13, 1896	1,034	3.00	9.11	12.11
Capital City Dairy.....	May 13, 1896	1,034	3.60	9.24	12.84
T. Christianson.....	Oct. 8, 1895	1,034	5.00	9.52	14.52
T. Christianson.....	Oct. 25, 1895	1,034	4.00	9.32	13.32
M. Klein.....	Oct. 8, 1895	1,034	3.60	9.24	12.84
M. Klein.....	Oct. 8, 1895	1,034	4.00	9.32	13.32
J. Sullivan.....	Oct. 8, 1895	1,033	3.80	9.28	13.08
Anna Olson.....	Oct. 8, 1895	1,034	4.00	9.32	13.32
F. Moser.....	Oct. 8, 1895	1,034	4.20	9.36	13.56
F. Moser.....	Nov. 5, 1895	1,033	3.80	9.02	12.82
F. Moser.....	July 16, 1896	1,033	3.50	8.71	12.21
F. Moser.....	July 16, 1896	1,032	4.60	8.94	13.54
F. Moser.....	July 29, 1896	1,032	3.60	8.73	12.33
F. Moser.....	July 29, 1896	1,031	3.60	8.48	12.08
F. Moser.....	Sept. 8, 1896	1,033	3.40	8.69	12.09
F. Moser.....	Sept. 8, 1896	1,033½	2.60	8.62	11.20
G. Polries.....	Oct. 3, 1895	1,031	5.20	8.81	14.01
D. F. Wright.....	Oct. 3, 1895	1,030	4.00	8.31	12.31
D. F. Wright.....	Oct. 3, 1895	1,032	4.60	8.94	13.54
M. J. Dunn.....	Oct. 3, 1895	1,032	3.80	8.77	12.57
M. J. Dunn.....	Oct. 3, 1895	1,032	3.60	8.73	12.33
M. J. Dunn.....	Oct. 15, 1895	1,033	4.60	9.19	13.79
M. J. Dunn.....	Oct. 22, 1895	1,033	5.40	9.36	14.76
M. J. Dunn.....	Oct. 22, 1895	1,030	5.40	8.60	14.00
M. J. Dunn.....	Nov. 21, 1895	1,030	3.40	8.19	11.59
M. J. Dunn.....	Nov. 21, 1895	1,031	3.00	8.36	11.36
C. Spangenberg.....	Oct. 3, 1895	1,034	4.20	9.36	13.56
C. Spangenberg.....	Oct. 3, 1895	1,034	4.40	9.40	13.80
C. Spangenberg.....	Oct. 22, 1895	1,031	3.90	8.54	12.44
C. Spangenberg.....	Oct. 22, 1895	1,034	4.20	9.36	13.56
C. Spangenberg.....	Dec. 19, 1895	1,032	3.80	8.77	12.57
C. Spangenberg.....	Dec. 19, 1895	1,034	3.60	9.24	12.84
C. Spangenberg.....	July 17, 1896	1,032	3.60	8.73	12.33
C. Spangenberg.....	July 17, 1896	1,032	4.80	8.98	13.78
C. Spangenberg.....	Jan. 2, 1896	1,033	3.40	8.94	12.34
C. Spangenberg.....	Jan. 2, 1896	1,034½	3.60	9.34	12.94
J. W. Smith.....	Oct. 3, 1895	1,030	3.60	8.23	11.83
J. W. Smith.....	Oct. 3, 1895	1,032	4.00	8.81	12.81
F. Baer.....	Oct. 3, 1895	1,033	3.60	8.98	12.58
F. Baer.....	Oct. 3, 1895	1,034	3.60	8.98	12.58
F. Baer.....	Nov. 5, 1895	1,034	4.20	9.36	13.56
F. Baer.....	Nov. 5, 1895	1,035	3.60	9.49	13.09
F. Baer.....	Nov. 30, 1895	1,032	3.60	8.73	12.33
F. Baer.....	Nov. 30, 1895	1,034	3.20	9.15	12.35
F. Baer.....	April 15, 1896	1,032	3.40	8.44	11.84
F. Baer.....	July 17, 1896	1,032	3.80	8.77	12.57
F. Baer.....	July 17, 1896	1,031	4.00	8.56	12.56
A. P. Brink.....	Oct. 9, 1895	1,033	4.40	9.15	13.55
A. P. Brink.....	Nov. 1, 1895	1,034	3.60	9.24	12.84
A. P. Brink.....	Dec. 11, 1895	1,033½	3.80	9.12	12.92
A. P. Brink.....	Dec. 11, 1895	1,035	3.80	9.53	14.33
N. Driscoll.....	Oct. 9, 1895	1,031	4.20	8.60	12.80
N. Driscoll.....	Oct. 9, 1895	1,029	4.80	8.22	13.01
N. Driscoll.....	Oct. 9, 1895	1,034	3.80	9.28	13.08
Joe St. Mary.....	Oct. 9, 1895	1,035	3.00	9.36	12.36
Joe St. Mary.....	Oct. 9, 1895	1,033	4.40	9.15	13.55
Clifton Dairy.....	Oct. 9, 1895	1,027	7.00	8.16	15.16



TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	So'lds.
Clifton Dairy.....	Oct. 9, 1895	1,034	3.60	9.24	12.84
Clifton Dairy.....	Oct. 9, 1895	1,029	3.80	8.02	11.82
Clifton Dairy.....	Oct. 9, 1895	1,032	5.40	9.10	14.50
Mr. Shepard.....	Oct. 9, 1895	1,026	3.00	7.10	10.10
Mr. Shepard.....	Oct. 9, 1895	1,031	5.00	8.76	13.76
A. Royles.....	Oct. 12, 1895	1,033	3.20	8.90	12.10
A. Royles.....	Oct. 12, 1895	1,034	4.00	9.32	13.32
A. Royles.....	Nov. 15, 1895	1,033	4.00	9.06	13.06
A. Royles.....	Nov. 15, 1895	1,034	3.80	9.28	13.08
A. Royles.....	Sept. 15, 1895	1,033½	3.60	8.83	12.43
W. J. Marshall.....	Oct. 12, 1895	1,032	5.20	9.06	14.26
W. J. Marshall.....	Dec. 18, 1895	1,031	3.60	8.48	12.08
A. Gagnier.....	Oct. 12, 1895	1,033	4.40	9.15	13.55
A. Gagnier.....	Oct. 12, 1895	1,031	7.40	9.28	16.68
A. Gagnier.....	Dec. 18, 1895	1,033	4.00	9.06	13.06
A. Gagnier.....	Dec. 18, 1895	1,033	3.60	8.98	12.58
A. Gagnier.....	April 22, 1896	1,033	3.80	8.77	12.57
A. Gagnier.....	April 22, 1896	1,033	4.60	8.94	13.54
A. Gagnier.....	May 17, 1896	1,034	3.80	9.28	13.08
A. Gagnier.....	May 17, 1896	1,033½	4.00	9.20	13.20
A. Gagnier.....	July 7, 1896	1,033	4.00	9.06	13.06
A. Gagnier.....	July 7, 1896	1,033	4.00	9.06	13.06
Crescent Creamery Co.....	Oct. 12, 1895	1,034	4.20	9.36	13.56
Crescent Creamery Co.....	Nov. 5, 1895	1,034	5.00	9.52	14.52
Crescent Creamery Co.....	Nov. 5, 1895	1,033	5.00	9.27	14.27
Crescent Creamery Co.....	Nov. 6, 1895	1,032½	4.40	9.00	13.40
Crescent Creamery Co.....	Nov. 14, 1895	1,033½	4.00	9.16	13.16
Crescent Creamery Co.....	Nov. 14, 1895	1,031	4.60	8.68	13.28
Crescent Creamery Co.....	Nov. 14, 1895	1,030	5.00	8.55	13.55
Crescent Creamery Co.....	Nov. 16, 1895	1,032	4.00	8.81	12.81
Crescent Creamery Co.....	Nov. 16, 1895	1,031½	4.40	8.74	13.14
Crescent Creamery Co.....	Dec. 12, 1895	1,033	3.69	8.98	12.58
Crescent Creamery Co.....	Dec. 12, 1895	1,032	4.60	8.94	13.54
Crescent Creamery Co.....	Dec. 14, 1895	1,034	3.80	9.28	13.08
Crescent Creamery Co.....	Dec. 14, 1895	1,032	4.00	8.81	12.81
Crescent Creamery Co.....	Dec. 27, 1895	1,034	3.00	9.11	12.11
Crescent Creamery Co.....	Dec. 27, 1895	1,035	3.20	9.41	12.61
Crescent Creamery Co.....	May 8, 1896	1,031	5.00	8.76	13.76
Crescent Creamery Co.....	May 8, 1896	1,026½	4.60	7.55	12.15
Crescent Creamery Co.....	July 9, 1896	1,032	5.40	8.10	13.50
Crescent Creamery Co.....	July 9, 1896	1,032	5.00	9.02	13.02
Crescent Creamery Co.....	July 29, 1896	1,032½	3.60	8.83	12.43
Crescent Creamery Co.....	July 29, 1896	1,031	3.80	8.52	12.32
Moser Bros.....	Oct. 12, 1895	1,033	4.00	9.06	13.06
Moser Bros.....	Oct. 12, 1895	1,033	4.20	9.11	13.31
Moser Bros.....	May 17, 1896	1,030	6.00	8.72	14.72
Moser Bros.....	May 17, 1896	1,034	3.20	9.15	12.35
Mrs. A. S. Poole.....	Oct. 12, 1895	1,032	4.50	8.92	13.42
Mrs. A. S. Poole.....	Oct. 12, 1895	1,032	7.00	9.43	16.43
Hulda Seigfred.....	Oct. 12, 1895	1,031	7.00	9.16	16.18
Hulda Seigfred.....	Oct. 12, 1895	1,031	6.80	9.16	15.96
John Greibrowski.....	Oct. 15, 1895	1,032	4.40	8.90	13.30
John Greibrowski.....	Oct. 15, 1895	1,033	3.80	9.02	12.82
John Greibrowski.....	Nov. 18, 1895	1,034	3.80	9.28	13.08
John Greibrowski.....	Nov. 18, 1895	1,035	4.20	9.62	13.82
John Greibrowski.....	Jan. 2, 1896	1,033½	3.80	9.12	12.92
John Greibrowski.....	Jan. 2, 1896	1,033½	4.00	9.16	13.16
John Greibrowski.....	July 10, 1896	1,034	4.00	9.32	13.32
John Greibrowski.....	July 10, 1896	1,033	3.60	8.98	12.58
A. J. Vogel.....	Oct. 15, 1895	1,034	4.20	9.36	13.56
A. J. Vogel.....	Oct. 15, 1895	1,035	3.40	9.45	12.85
A. J. Vogel.....	Oct. 22, 1895	1,034	3.90	9.30	13.20
A. J. Vogel.....	Oct. 22, 1895	1,033	3.60	8.98	12.58
A. J. Vogel.....	Nov. 25, 1895	1,034	3.80	9.28	13.08
A. J. Vogel.....	Nov. 25, 1895	1,035	3.60	9.49	13.09
A. J. Vogel.....	May 12, 1896	1,034½	4.00	9.50	13.50

TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
A. J. Vogel.....	May 12, 1896	1.035	3.60	9.49	13.09
A. J. Vogel.....	July 16, 1896	1.034	4.00	9.32	13.32
A. J. Vogel.....	July 16, 1896	1.033½	5.00	9.37	14.37
Huebscher Bros.....	Oct. 15, 1895	1.032	4.00	8.81	12.81
Huebscher Bros.....	Oct. 15, 1895	1.033	3.40	8.94	12.34
Huebscher Bros.....	Nov. 5, 1895	1.031	3.80	8.52	12.32
Huebscher Bros.....	Nov. 5, 1895	1.031	4.00	8.56	12.56
Pat O'Brien.....	Oct. 15, 1895	1.034	4.00	9.32	13.32
Pat O'Brien.....	Oct. 15, 1895	1.035	3.80	9.53	13.33
Pat O'Brien.....	Dec. 18, 1895	1.032	3.60	8.98	12.58
Pat O'Brien.....	Dec. 18, 1895	1.034½	3.80	9.88	13.18
Pat O'Brien.....	Aug. 27, 1896	1.035	3.80	9.28	13.98
Pat O'Brien.....	Aug. 27, 1896	1.033½	4.40	9.00	13.40
John Rufenach.....	Oct. 15, 1895	1.035	4.00	9.57	13.57
John Rufenach.....	Oct. 15, 1895	1.031	3.80	8.52	12.32
John Rufenach.....	Oct. 22, 1895	1.032	4.40	8.80	13.30
John Rufenach.....	Oct. 22, 1895	1.031	3.00	8.36	11.36
J. A. Ostlund.....	Oct. 15, 1895	1.033	3.60	8.98	12.58
J. A. Ostlund.....	Oct. 31, 1895	1.033	4.00	9.06	13.06
J. A. Ostlund.....	Nov. 15, 1895	1.032	4.00	8.81	12.81
J. A. Ostlund.....	Nov. 15, 1895	1.031	3.80	8.52	12.32
J. A. Ostlund.....	Nov. 15, 1895	1.030	4.00	8.31	12.31
J. A. Ostlund.....	Dec. 13, 1895	1.031	3.80	8.52	12.32
J. A. Ostlund.....	Dec. 19, 1895	1.032	3.60	8.73	12.33
J. A. Ostlund.....	Dec. 19, 1895	1.031	4.40	8.64	13.04
C. Seiberlich.....	Oct. 27, 1895	1.032	4.40	8.90	13.30
W. Wadl.....	Oct. 27, 1895	1.031	3.50	8.46	11.96
W. Wadl.....	Dec. 21, 1895	1.029	4.00	8.06	12.06
W. Wadl.....	May 14, 1896	1.033	3.60	8.98	12.58
W. Wadl.....	Aug. 4, 1896	1.032½	3.60	8.83	12.43
W. Wadl.....	Sept. 8, 1896	1.035	5.00	9.52	14.52
W. Wadl.....	Sept. 8, 1896	1.033	3.80	8.77	12.57
Anton Soler.....	Oct. 22, 1895	1.033	3.70	9.00	12.70
Anton Soler.....	Oct. 22, 1895	1.033	4.00	9.06	13.06
Anton Soler.....	July 21, 1896	1.034	4.00	9.32	13.32
Antoa Soler.....	July 21, 1896	1.034½	4.60	9.54	13.14
Herman Eibut.....	Oct. 25, 1895	1.034	3.60	9.24	12.84
Herman Eibut.....	Oct. 25, 1895	1.035	4.40	9.66	14.06
J. W. Nelson.....	Oct. 25, 1895	1.034	3.80	9.28	13.08
J. W. Nelson.....	Oct. 25, 1895	1.035	3.40	9.45	12.85
John Mitchel.....	Oct. 25, 1895	1.035	3.80	9.53	13.33
John Mitchel.....	Oct. 25, 1895	1.035	3.60	9.49	13.09
Globe Dairy Co.....	Oct. 25, 1895	1.032	3.80	8.77	12.57
Globe Dairy Co.....	Oct. 25, 1895	1.033	3.80	9.02	12.82
A. Nelson.....	Oct. 25, 1895	1.034	4.40	9.15	13.55
John T. Johnson.....	Oct. 25, 1895	1.035	3.40	9.45	12.85
John T. Johnson.....	Oct. 25, 1895	1.033	3.40	8.94	12.34
John T. Johnson.....	May 15, 1896	1.034	4.00	9.32	13.32
John T. Johnson.....	May 15, 1896	1.035	3.00	9.36	12.36
W. J. Howell.....	Oct. 29, 1895	1.035	5.40	9.86	15.26
W. J. Howell.....	April 17, 1896	1.033	3.50	8.71	12.21
W. J. Howell.....	April 17, 1896	1.033½	3.60	8.85	12.45
W. J. Howell.....	July 9, 1896	1.032	3.80	8.77	12.57
W. J. Howell.....	July 9, 1896	1.033	4.00	9.06	13.06
W. J. Howell.....	Aug. 20, 1896	1.031	3.60	8.48	12.08
W. J. Howell.....	Aug. 20, 1896	1.032½	4.20	8.95	13.15
McCarron Dairy.....	Oct. 29, 1895	1.034	4.40	9.40	13.80
McCarron Dairy.....	Dec. 19, 1895	1.034½	4.00	9.42	13.42
J. B. Little.....	Oct. 31, 1895	1.032	3.60	8.73	12.33
J. B. Little.....	Oct. 31, 1895	1.033	3.20	8.90	12.10
Albert Bros.....	Oct. 31, 1895	1.032	4.00	8.81	12.81
Albert Bros.....	Oct. 31, 1895	1.032	3.20	8.65	11.85
Albert Bros.....	Nov. 6, 1895	1.033	4.00	9.06	13.06
Albert Bros.....	Nov. 6, 1895	1.032	3.20	8.65	11.85
Albert Bros.....	Dec. 31, 1895	1.032	4.20	8.85	13.05
Albert Bros.....	May 14, 1896	1.034	3.30	9.18	12.48

TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
Albert Bros.....	May 14, 1896	1,034	4.20	9.36	13.56
Albert Bros.....	Aug. 21, 1896	1,033	4.00	8.81	12.81
R. Johnson.....	Nov. 1, 1895	1,033	4.00	9.06	13.06
R. Johnson.....	Nov. 1, 1895	1,032	4.20	8.85	12.05
R. Johnson.....	Dec. 10, 1895 <sup>4</sup>	1,033½	3.80	9.12	12.92
R. Johnson.....	Dec. 10, 1895	1,034	4.20	9.36	10.56
John Christianson.....	Nov. 1, 1895	1,033	4.20	9.11	13.31
C. Wenquist.....	Nov. 1, 1895	1,033	4.40	9.15	13.55
Louis Benson.....	Nov. 1, 1895	1,033	4.00	9.06	13.06
Louis Benson.....	Nov. 1, 1895	1,034	4.40	9.40	13.80
G. A. Damberg.....	Nov. 1, 1895	1,033	4.60	9.10	13.79
G. A. Damberg.....	Dec. 11, 1895	1,033	4.80	9.23	14.03
G. A. Damberg.....	Dec. 11, 1895	1,033	4.60	9.19	13.79
G. A. Damberg.....	May 5, 1896	1,032	3.80	8.77	12.57
G. A. Damberg.....	May 5, 1896	1,029	6.00	8.47	14.47
G. A. Damberg.....	May 5, 1896	1,030	6.20	8.72	14.92
P. Peifer.....	Nov. 1, 1895	1,033	3.50	8.96	12.46
P. Peifer.....	Nov. 1, 1895	1,032	3.20	8.65	11.86
P. Peifer.....	Dec. 11, 1895	1,030	3.00	8.10	11.10
P. Peifer.....	Dec. 11, 1895	1,032	3.20	8.65	11.85
W. Fowler.....	Nov. 5, 1895	1,035	3.60	9.49	13.09
W. Fowler.....	Nov. 5, 1895	1,035	3.00	9.36	12.86
W. Fowler.....	Nov. 12, 1895	1,033	4.00	9.06	13.06
W. Fowler.....	Nov. 28, 1895	1,032	3.80	8.77	12.57
W. Fowler.....	Dec. 18, 1895	1,033	4.20	9.11	13.31
W. Fowler.....	Dec. 18, 1895	1,033	3.40	8.94	12.34
W. Fowler.....	Nov. 6, 1895	1,034½	3.60	9.34	12.94
W. Fowler.....	Nov. 6, 1895	1,033½	3.00	8.96	11.96
H. W. Hanson.....	Nov. 5, 1895	1,033	3.60	8.98	12.58
H. W. Hanson.....	Nov. 16, 1895	1,031½	3.80	8.62	12.42
H. W. Hanson.....	Nov. 16, 1895	1,031	4.00	8.56	12.56
H. W. Hanson.....	Jan. 2, 1896	1,032	3.00	8.61	11.61
H. W. Hanson.....	Jan. 2, 1896	1,034	3.00	9.11	12.11
H. W. Hanson.....	July 22, 1896	1,029	4.00	8.06	12.06
C. Forestein.....	Nov. 6, 1895	1,031	4.20	8.60	12.80
C. Forestein.....	Nov. 6, 1895	1,032	4.20	8.85	13.05
C. Forestein.....	May 14, 1896	1,032	4.60	8.94	13.54
C. Forestein.....	May 14, 1896	1,033	3.00	8.86	11.86
C. Forestein.....	May 27, 1896	1,033	3.80	9.02	12.82
C. Forestein.....	May 27, 1896	1,033	3.20	8.90	12.10
C. Forestein.....	July 7, 1896	1,031	3.80	8.52	12.32
C. Forestein.....	July 7, 1896	1,032	4.40	8.90	13.30
J. Schmidt.....	Nov. 6, 1895	1,033½	4.00	9.16	13.16
J. Schmidt.....	Nov. 6, 1895	1,033½	3.40	9.04	12.44
J. Schmidt.....	Nov. 23, 1895	1,032	3.40	8.69	12.09
J. Schmidt.....	April 22, 1896	1,030½	4.00	8.20	12.20
J. Schmidt.....	April 22, 1896	1,032	3.00	8.36	11.36
J. Schmidt.....	May 5, 1896	1,033	3.40	8.94	12.34
J. Schmidt.....	May 5, 1896	1,033	3.60	8.98	12.58
J. Schmidt.....	July 7, 1896	1,032½	3.40	8.80	12.20
J. Schmidt.....	July 7, 1896	1,033	4.00	9.06	13.06
J. Schmidt.....	Aug. 21, 1896	1,032½	3.80	8.62	12.42
J. Schmidt.....	Aug. 21, 1896	1,032	3.60	8.48	12.08
St. Paul Dairy.....	Nov. 12, 1895	1,030	5.00	8.51	13.51
St. Paul Dairy.....	Nov. 12, 1895	1,032	4.80	8.98	13.78
St. Paul Dairy.....	Dec. 12, 1895	1,033	3.00	8.86	11.86
St. Paul Dairy.....	Dec. 12, 1895	1,033	3.80	9.02	12.82
Paul Soliva.....	Nov. 12, 1895	1,031	4.40	8.64	13.04
Paul Soliva.....	Nov. 12, 1895	1,033½	3.60	9.08	12.68
Paul Soliva.....	Dec. 31, 1895	1,031	3.60	8.48	12.08
Paul Soliva.....	Dec. 31, 1895	1,030	3.60	8.23	11.83
Paul Soliva.....	Dec. 27, 1895	1,030	3.00	8.10	11.10
Paul Soliva.....	May 5, 1896	1,029	3.80	8.02	11.82
Paul Soliva.....	May 5, 1896	1,032	3.40	8.69	12.09
Paul Soliva.....	July 10, 1896	1,031	3.80	8.52	12.32
Paul Soliva.....	July 10, 1896	1,032	3.40	8.69	12.09



TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
Paul Soliva.....	Sept. 10, 1896	1,031½	3.80	8.37	12.17
N. Welsch.....	Nov. 14, 1895	1,031	4.40	8.64	13.04
N. Welsch.....	Nov. 14, 1895	1,030	4.20	8.35	12.55
N. Welsch.....	May 27, 1896	1,032	3.00	8.61	11.61
N. Welsch.....	May 27, 1896	10.28	5.40	7.84	13.24
N. Welsch.....	July 10, 1896	1,029	3.20	7.89	11.09
N. Welsch.....	July 10, 1896	1,032	3.40	8.89	12.09
N. Welsch.....	Aug. 4, 1896	1,028	3.00	7.60	10.60
N. Welsch.....	Aug. 4, 1896	1,026	3.00	7.10	10.10
N. Welsch.....	Sept. 10, 1896	1,032	4.00	8.56	12.56
N. Welsch.....	Sept. 10, 1896	1,030	6.00	8.47	14.47
John Zinnill.....	Nov. 14, 1895	1,030	3.20	8.15	11.35
John Zinnill.....	May 27, 1896	1,032	3.40	8.60	12.00
John Zinnill.....	May 27, 1896	1,033	4.00	9.06	13.06
George Helfrick.....	Nov. 15, 1895	1,033	3.60	8.98	12.58
P. Hendrickson.....	Nov. 15, 1895	1,032½	3.60	8.83	12.43
P. Hendrickson.....	Nov. 15, 1895	1,032	3.60	8.73	12.33
P. Hendrickson.....	Aug. 20, 1896	1,032	3.80	8.52	12.32
P. Hendrickson.....	Aug. 20, 1896	1,032	3.80	8.52	12.32
J. B. Paquette.....	Nov. 15, 1895	1,029	3.80	8.02	11.82
J. B. Paquette.....	Nov. 15, 1895	1,031	4.00	8.56	12.56
J. B. Paquette.....	Dec. 27, 1895	1,031	3.40	8.44	11.84
J. B. Paquette.....	Dec. 27, 1895	1,031	4.00	8.56	12.56
James Casey.....	Nov. 16, 1895	1,033	3.60	9.24	12.84
James Casey.....	Dec. 3, 1895	1,034	3.20	9.15	12.35
James Casey.....	Dec. 3, 1895	1,031	5.00	8.51	13.51
James Casey.....	Dec. 13, 1895	1,030	3.60	8.23	11.83
James Casey.....	Dec. 21, 1895	1,030	5.00	8.51	13.51
James Casey.....	Dec. 21, 1895	1,032	3.60	8.73	12.33
James Casey.....	July 9, 1896	1,032	4.00	8.81	12.81
James Casey.....	July 9, 1896	1,031	4.00	8.56	12.56
James Casey.....	July 17, 1896	1,032½	4.00	8.91	12.91
James Casey.....	July 17, 1896	1,033	3.40	8.94	11.34
James Casey.....	Aug. 4, 1896	1,030	3.40	8.19	11.59
W. Walquist.....	Nov. 16, 1895	1,032	4.20	8.85	13.05
W. Walquist.....	Nov. 16, 1895	1,032½	4.00	8.91	12.91
W. Walquist.....	Dec. 27, 1895	1,030	3.60	8.23	11.83
W. Walquist.....	Dec. 27, 1895	1,031	3.40	8.44	11.84
Fred Hessig.....	Nov. 16, 1895	1,033	4.40	9.15	13.55
Fred Hessig.....	Nov. 16, 1895	1,031	4.20	8.60	12.80
Fred Hessig.....	July 21, 1896	1,031½	4.20	8.70	12.90
Fred Hessig.....	July 21, 1896	1,032½	4.00	8.91	12.91
George Bodly.....	Nov. 19, 1895	1,033	4.80	9.23	14.03
George Bodly.....	Nov. 19, 1895	1,034	4.20	9.36	13.56
De Soto Dairy.....	Nov. 19, 1895	1,033	4.80	9.23	14.03
De Soto Dairy.....	Nov. 19, 1895	1,032	4.60	8.94	13.54
P. Erickson.....	Nov. 19, 1895	1,034	4.20	9.36	13.56
P. Erickson.....	Nov. 19, 1895	1,033	4.00	9.06	13.06
Gus Schmidt.....	Nov. 21, 1895	1,033	3.80	9.02	12.82
Gus Schmidt.....	Nov. 21, 1895	1,032	3.80	8.77	12.57
Gus Schmidt.....	July 21, 1896	1,031	3.40	8.44	11.84
Gus Schmidt.....	July 21, 1896	1,031	3.00	8.36	11.36
C. Schanno.....	Mar. 23, 1895	1,031	2.80	8.57	11.37
C. Schanno.....	April 14, 1896	1,033	3.20	8.65	11.85
C. Schanno.....	April 14, 1896	1,032	3.80	8.52	12.32
C. Schanno.....	May 15, 1896	1,033	3.60	8.98	12.58
C. Schanno.....	May 15, 1896	1,034	4.40	9.40	13.80
C. Schanno.....	July 22, 1896	1,034	3.20	9.15	12.35
C. Schanno.....	July 22, 1896	1,033	3.20	9.15	12.35
F. R. Peck.....	Nov. 23, 1895	1,032½	4.60	9.04	13.64
F. R. Peck.....	Aug. 27, 1896	1,034	4.20	9.11	13.31
F. R. Peck.....	Aug. 27, 1896	1,035	3.40	9.20	12.60
John Mollner.....	Nov. 29, 1895	1,023	4.40	9.15	13.55
Paul Anderson.....	Nov. 29, 1895	1,033	3.40	8.94	12.34
J. Wachler.....	Nov. 30, 1895	1,035	3.20	9.41	12.61
J. Wachler.....	Nov. 30, 1895	1,034½	3.20	9.25	12.45



TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
J. Wachler.....	Dec. 14, 1896	1.034	2.80	9.07	11.87
J. Wachler.....	Dec. 14, 1896	1.035	3.00	9.36	12.36
J. Wachler.....	Dec. 18, 1896	1.035	3.40	9.45	12.85
J. Wachler.....	May 17, 1896	1.035	3.40	9.45	12.85
J. Wachler.....	July 7, 1896	1.034	3.80	9.28	13.08
J. Wachler.....	July 7, 1896	1.034½	2.60	9.15	11.75
Charles Jensen.....	Nov. 30, 1895	1.035	3.60	9.49	13.09
Charles Jensen.....	Nov. 30, 1895	1.033	4.00	9.06	13.06
Charles Jensen.....	July 9, 1896	1.032	3.60	8.73	12.33
Charles Jensen.....	July 9, 1896	1.035	2.30	9.22	11.52
C. Bennett.....	Dec. 3, 1895	1.036	4.40	9.91	14.31
C. Bennett.....	Dec. 3, 1895	1.035½	4.00	9.67	13.67
C. Bennett.....	Aug. 26, 1896	1.034	4.40	9.15	13.55
C. Bennett.....	Aug. 26, 1896	1.034½	4.50	9.27	13.77
St. Anthony Hill Dairy.....	Dec. 5, 1895	1.033	3.60	8.98	12.58
St. Anthony Hill Dairy.....	Dec. 5, 1895	1.032	3.40	8.69	12.09
St. Anthony Hill Dairy.....	Dec. 12, 1895	1.032	3.80	8.77	12.57
St. Anthony Hill Dairy.....	Dec. 12, 1895	1.032	3.80	8.77	12.57
G. A. Johnson.....	Dec. 10, 1895	1.033	4.20	9.11	13.31
G. A. Johnson.....	Dec. 10, 1895	1.033	3.80	9.02	12.82
H. Klaizer.....	Dec. 10, 1895	1.033	4.20	9.11	13.31
H. Klaizer.....	Dec. 10, 1895	1.033	3.80	9.02	12.82
Charles Jacobson.....	Dec. 10, 1895	1.032	4.20	8.85	13.05
Charles Jacobson.....	Dec. 10, 1895	1.032½	4.40	8.74	13.14
M. Peterson.....	Dec. 10, 1895	1.033	4.00	9.06	13.06
P. Person.....	Dec. 11, 1895	1.033	4.00	9.06	13.06
P. Person.....	Dec. 11, 1895	1.033	3.80	9.02	12.82
C. Schlitching.....	Dec. 11, 1895	1.034	3.80	9.28	13.08
C. Schlitching.....	Dec. 11, 1895	1.034	3.00	9.11	12.11
Charles Hansen.....	Dec. 13, 1895	1.031	3.40	8.44	11.84
Charles Hansen.....	Dec. 19, 1895	1.030	4.00	8.31	12.31
A. Fleigel.....	Dec. 14, 1895	1.033	3.80	9.02	12.82
A. Fleigel.....	Dec. 14, 1895	1.031	4.40	8.90	13.30
A. Fleigel.....	April 17, 1896	1.032½	3.60	8.60	12.20
A. Fleigel.....	April 17, 1896	1.032	4.00	8.56	12.56
H. Zelch.....	Dec. 4, 1895	1.034	3.60	9.24	12.84
H. Zelch.....	Dec. 4, 1895	1.035	2.60	9.28	11.88
H. Zelch.....	Aug. 26, 1896	1.032½	3.60	8.83	12.43
H. Zelch.....	Aug. 26, 1896	1.033	3.80	9.02	12.82
Joseph Ollig.....	Dec. 14, 1895	1.033	4.00	9.06	13.06
Joseph Ollig.....	Dec. 14, 1895	1.034	3.40	9.20	12.60
B. Solhenback.....	Dec. 18, 1895	1.031	3.20	8.40	11.60
B. Solhenback.....	Dec. 18, 1895	1.031	3.80	8.52	12.32
Sane Sturgenezzer.....	Dec. 19, 1895	1.030	5.00	8.51	13.51
Sane Sturgenezzer.....	Dec. 19, 1895	1.029½	5.00	8.36	13.36
Sane Sturgenezzer.....	April 5, 1896	1.031	5.00	8.51	13.51
Sane Sturgenezzer.....	April 5, 1896	1.032	5.00	8.76	13.76
D. J. Luby.....	Dec. 19, 1895	1.032	4.80	8.98	13.78
D. J. Luby.....	May 21, 1896	1.032	3.80	8.77	12.57
D. J. Luby.....	May 21, 1896	1.032	4.00	8.81	12.81
Frank Strobel.....	Dec. 19, 1895	1.033	3.80	9.02	12.82
G. P. Mattson.....	Dec. 31, 1895	1.034½	4.00	9.42	13.42
G. P. Mattson.....	Dec. 31, 1895	1.032	4.20	8.85	13.05
J. H. Morgan.....	Dec. 31, 1895	1.032	4.00	8.81	12.81
J. H. Morgan.....	Dec. 31, 1895	1.032	4.00	8.81	12.81
J. H. Morgan.....	Dec. 31, 1895	1.031	4.00	8.86	12.56
A. Mollet.....	Dec. 27, 1895	1.031	2.80	8.31	11.11
A. Mollet.....	Dec. 27, 1895	1.029½	4.00	8.16	12.16
A. Mollet.....	Jan. 2, 1896	1.032	3.60	8.73	12.33
A. Mollet.....	Jan. 2, 1896	1.030½	3.40	8.29	11.69
A. Mollet.....	April 22, 1896	1.031	2.80	8.10	10.90
A. Mollet.....	April 22, 1896	1.030	3.20	7.89	11.09
A. Mollet.....	June 21, 1896	1.031	4.00	8.56	12.56
A. Mollet.....	June 21, 1896	1.033½	4.00	9.16	13.16

TABLE III.—*Continued.*

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
Fred Mund.....	Dec. 27, 1895	1,032	4.00	8.81	12.31
Fred Mund.....	Dec. 27, 1895	1,031	3.60	8.48	12.09
Fred Mund.....	April 15, 1896	1,035	4.20	9.36	13.56
W. Waldquest.....	Dec. 27, 1895	1,030	3.60	8.23	11.83
W. Waldquest.....	Dec. 27, 1895	1,031	3.40	8.44	11.84
W. Waldquest.....	July 31, 1896	1,032	3.20	8.65	11.85
W. Waldquest.....	July 31, 1896	1,033	4.20	8.85	13.05
A. P. Wolfsehr.....	April 14, 1895	1,032	4.60	8.68	13.28
A. P. Wolfsehr.....	April 14, 1895	1,030	4.00	8.06	12.06
H. Roberts.....	April 15, 1895	1,034	4.00	9.06	13.06
H. Roberts.....	April 15, 1895	1,033	3.80	8.77	12.57
H. Roberts.....	July 29, 1896	1,031½	3.40	8.44	11.84
H. Roberts.....	July 29, 1896	1,030	5.00	8.51	13.51
M. Schneider.....	April 17, 1896	1,030	4.00	8.06	12.06
Gus Johnson.....	May 8, 1896	1,033	3.00	8.86	11.86
John Olson.....	May 14, 1896	1,034	3.80	9.28	13.08
John Olson.....	May 14, 1896	1,033	4.40	9.15	13.55
John Olson.....	July 28, 1896	1,034	3.80	9.02	12.82
Oscar Larson.....	May 14, 1896	1,032	4.80	8.98	13.78
Oscar Larson.....	May 14, 1896	1,031	3.60	8.48	12.08
Oscar Larson.....	Aug. 20, 1896	1,031	3.80	8.52	12.32
Oscar Larson.....	Aug. 20, 1896	1,034	3.00	9.11	12.11
J. Deland.....	Sept. 10, 1896	1,033	4.00	8.81	12.81
James Dolan.....	May 17, 1896	1,034	3.20	9.15	12.35
James Dolan.....	May 17, 1896	1,032	3.80	8.77	12.57
J. E. Hoffman.....	May 17, 1896	1,031	3.60	8.48	12.08
J. E. Hoffman.....	May 17, 1896	1,032	3.40	8.69	12.00
M. Anderson.....	May 13, 1896	1,033½	4.20	9.25	13.45
M. Anderson.....	May 13, 1896	1,034	4.20	9.36	13.56
P. D. Peterson.....	May 13, 1896	1,034½	3.20	9.25	12.45
P. D. Peterson.....	May 13, 1896	1,034	3.60	9.24	12.84
F. H. Pinska.....	May 13, 1896	1,033	4.20	9.11	13.31
F. H. Pinska.....	May 13, 1896	1,035	2.40	9.24	11.64
A. J. Pedersen.....	May 13, 1896	1,033	4.60	9.19	13.56
Frank Rodmier.....	May 21, 1896	1,031	4.00	8.56	12.56
Frank Rodmier.....	May 21, 1896	1,031	4.00	8.98	12.58
J. F. Jackson.....	May 21, 1896	1,033	3.60	8.98	12.58
J. F. Jackson.....	May 21, 1896	1,033	3.60	8.81	12.81
W. D. Tupper.....	May 27, 1896	1,032	4.00	8.73	12.33
W. D. Tupper.....	May 27, 1896	1,034	4.40	9.40	13.80
John Schroeder.....	July 7, 1896	1,033	3.80	9.02	12.82
John Schroeder.....	July 7, 1896	1,031½	4.40	8.74	13.14
John Schroeder.....	July 31, 1896	1,033	3.80	9.02	12.82
John Schroeder.....	July 31, 1896	1,034	3.40	9.20	12.60
McMenemy Bros.....	July 10, 1896	1,034½	3.60	9.34	12.94
McMenemy Bros.....	July 10, 1896	1,033	3.60	8.73	12.33
M. Schanno.....	July 17, 1895	1,032	3.60	8.98	12.58
M. Schanno.....	July 17, 1895	1,029	5.00	8.26	13.26
M. Schanno.....	Aug. 4, 1895	1,032	3.00	8.61	11.61
A. Anderson.....	Aug. 4, 1895	1,033½	3.00	8.96	11.96
Fred Obi.....	July 21, 1896	1,031	2.60	8.27	10.87
Fred Obi.....	July 21, 1896	1,030	2.80	8.06	10.86
Gust Johnson.....	July 22, 1896	1,034	3.20	9.15	12.15
P. Gleason.....	July 22, 1896	1,030	5.30	8.57	13.57
P. Gleason.....	July 22, 1896	1,031½	4.20	8.70	12.90
A. Fluegel.....	July 31, 1896	1,030	3.40	8.19	11.59
A. Fluegel.....	July 31, 1896	1,031	3.60	8.48	12.08
A. Fluegel.....	Aug. 26, 1896	1,031	4.00	8.56	12.56
A. Fluegel.....	Aug. 26, 1896	1,031½	3.60	8.58	12.18
S. Coplin.....	July 31, 1896	1,033	4.00	9.06	13.06
S. Coplin.....	July 31, 1896	1,033	4.00	9.06	13.06
R. Bryant.....	Aug. 20, 1896	1,033	3.80	9.02	12.82
R. Bryant.....	Aug. 20, 1896	1,033	3.60	8.98	11.58

TABLE III.—Continued.

SAMPLES OF MILK TAKEN AND TESTED BY S. M. WEST, INSPECTOR.

Name.	Date.	Gravity.	Fat.	Solids Not Fat.	Solids.
Jos. Hurley.....	Aug. 20, 1896	1,034	3.50	8.96	12.46
Jos. Hurley.....	Aug. 20, 1896	1,034	3.60	8.98	12.58
C. J. Clarkson.....	Aug. 21, 1896	1,034	4.20	9.11	13.31
C. J. Clarkson.....	Aug. 21, 1896	1,033	3.40	8.60	12.09
Oscar Gessner.....	Aug. 26, 1896	1,032½	4.40	9.00	13.40
Oscar Gessner.....	Aug. 26, 1896	1,032½	4.20	8.95	13.15
John Lindburg.....	Aug. 26, 1896	1,032	4.20	8.85	13.05
John Lindburg.....	Aug. 26, 1896	1,032	4.40	8.90	13.30
F. Hall.....	Aug. 27, 1896	1,033	3.60	8.98	12.58
F. Hall.....	Aug. 27, 1896	1,032	3.80	8.77	12.57

TABLE IV.

ANALYSIS OF ILLEGAL AND ADULTERATED MILK.

	Specified Gravity at 15.5c.	Total Solids.	Fat.	Solids, Not fat.	Ash.	Water.	How Adulterated.
Peter Hanson....	1.0345	12.87	3.59	9.28	.62	87.13	Illegal.
Gus Bathke.....	1.0277	10.26	2.40	7.86	.65	89.74	Water added.
Gus Bathke.....	1.0280	10.18	2.20	7.98	.60	89.82	Water added.
Gus Bathke.....	1.0290	11.09	3.10	7.99	.60	88.91	Water added.
Gus Bathke.....	1.0294	11.11	....	....	.60	88.89	Water added.
E. Smith.....	1.0333	11.67	2.91	8.76	.66	88.33	Illegal.
A. Carlson.....	1.0320	11.84	3.28	8.56	.71	88.16	Illegal.
W. G. Pinska.....	1.0330	11.98	2.80	9.18	.72	88.02	Illegal.
J. Goodman.....	1.0320	10.23	1.79	8.44	.65	89.77	Water added.
W. J. Marshall....	1.0303	11.14	2.72	8.42	.76	88.86	Not normal.
J. Goodman & Co.	1.0321	9.60	1.70	7.90	.66	90.40	Water added.
J. Rufenacht.....	1.0325	10.99	2.81	8.18	.71	89.01	Illegal.
Fair View Dairy..	1.0340	11.02	2.42	8.60	.78	88.98	Skimmed.
F. Gangloff.....	1.0264	10.46	3.28	7.18	.59	89.54	Water added.
C. Walker.....	1.0350	11.76	2.54	9.22	.71	88.24	Skimmed.
G. Walters.....	....	11.20	2.31	8.89	....	88.80	Skimmed.
Mrs. Geo. Voltol..	1.0340	11.02	1.87	9.15	.66	88.98	Skimmed.
Mrs. Shrimpton...	1.0220	8.62	2.40	6.22	.60	91.38	Water added.
Wm. Spalding....	1.0230	9.59	3.48	6.11	.50	90.41	Water added.
D. W. Fowler....	1.0230	10.69	3.60	7.09	.55	89.31	Water added.
Minn. Milk Co....	1.0330	11.48	2.51	8.97	.82	88.52	Skimmed.
John Zimmel.....	1.0280	10.03	2.42	7.61	.70	89.97	Water added.
Ed. Nolan.....	1.0270	11.78	3.60	8.18	.63	88.12	Water added.
Minn. Milk Co....	1.0255	10.29	3.40	7.72	.49	99.71	Water added.
McMenemy Bros..	1.0280	11.61	3.34	8.27	.66	88.39	Water added.
A. Durose.....	1.0275	11.87	3.37	8.50	.60	88.13	Water added.
Shanno Dairy....	1.0280	11.96	2.91	9.05	.71	88.04	Abnormal.
Tony Schmidt....	1.0285	12.51	3.50	9.01	.71	87.49	Illegal.
Jos. Salfer.....	1.0255	10.49	3.00	7.49	.58	89.51	Water added.
George Manhart..	1.0315	11.29	3.06	8.23	.73	88.71	Illegal.
Mrs. S. Kanary....	1.0325	11.13	2.50	8.63	.71	88.87	Illegal.
Bragg Bros.....	1.0350	12.25	3.06	9.19	.69	87.75	Skimmed.
F. H. Pinska.....	1.0350	12.03	2.62	9.41	.71	87.97	Skimmed.
C. Dixon.....	1.0350	11.73	2.56	9.17	.68	88.27	Skimmed.
J. W. McGrath....	1.0340	11.96	2.60	9.36	.82	88.04	Skimmed.
N. Welch.....	1.0270	10.58	3.22	7.36	.66	89.42	Water added.
Charles Jensen...	1.0350	11.39	2.23	9.16	.74	88.61	Skimmed.
E. M. Sloggy.....	1.0350	11.97	2.64	7.33	.71	88.03	Skimmed.
N. Welch.....	1.0260	10.16	3.14	7.02	.72	89.84	Water added.



"MARKETABLE MILK."

Certainly close inspection and public supervision of milk sold to creameries and cheese factories is desirable. Any deficiency in quality is immediately noticeable in the finished product. Of late years, however, the butter and cheese maker is more independent of public protection. Milk in most cases is graded and paid for according to its fat content as determined by actual test. Creameries are now largely coöperative, and the farmer in delivering inferior milk is simply injuring a business in which he has a personal interest. Then, too, experienced men are usually employed, who easily recognize inferior, dirty, or tainted milk and reject it. If the worst thing possible should happen and unhealthy milk pass all systems of inspection, it is unlikely that its poisonous properties would be communicated to butter and cheese made therefrom. Far different is the case in milk sold for immediate consumption. The dairymen are often, and I fear as a class, not sufficiently enlightened upon the hygienic relations of milk to enable them to exercise the care and diligence required for the production of milk free from contamination. Often, too, they are heedless or careless, the purchaser helpless, and the consumer—perhaps the babe—easiest prey to poisonous properties. If not actually harmful, milk may be deficient in food properties which the fond mother or helpless invalid confidently expect to be present.

Before calling attention to some forms of milk adulteration and discussing the problem of getting fresh, wholesome, and nutritious milk into the homes in our cities, it is but just to observe that, compared with other cities, the average quality of milk sold in St. Paul, Minneapolis, and Duluth is far superior, and undoubtedly reaches the consumer in better condition and without the use of antiseptics and poisonous chemical preservatives.

Of first importance in the consideration of marketable milk is its hygienic relations. The purity and wholesomeness of fresh unadulterated milk depends upon two things, viz.: (1) health in the cow, and (2) freedom from contamination with noxious microbes. In previous reports of the Minnesota Dairy and Food Commission, attention has been called to the liability of transmission of disease from animal to man through the agency of milk. Among diseases known to be transmissible were noted diphtheria, foot and mouth disease and tuberculosis. The recently discovered prevalence of the last named disease among dairy cows should surely induce us to exercise due diligence and every scientific caution of value to prevent such milk being peddled from house to house.



As is now generally understood, milk is what is known as a "culture fluid." Any bacteria, good, bad, or otherwise, coming in contact with it, from the moment it is drawn from the cow until it reaches the lips of the consumer, grow and multiply, to reproduce their kind and distribute their poison perhaps in some human being. In this manner milk is capable of reproducing any infectious disease. Milk in the cow's udder is probably entirely free from bacteria. They are present in the air, soil, and water, and universally in the milk ducts. The first milk drawn, therefore, always contains the most microbes. Bacteria, although everywhere abundant, prefer environments which to higher animals are unsavory and unhealthy, not finding conditions favorable to their growth in sunlight and pure air. It is in unsanitary surroundings that those species of microbes producing disease, especially typhoid fever and cholera, are most liable to be found.

To bacteria is mainly due the decomposition of milk. One of the first products of this decomposition is lactic acid, clearly indicated by its sour taste, and, in larger quantities, by the curdling of the milk, due to coagulation of the casein by the lactic acid formed. The less microbes a milk contains, the longer will it remain marketable and the more healthy and nutritious will it be. The aim of all persons handling milk should be to secure it as free from microbes as possible and to keep it under conditions least favorable to their growth and multiplication. The latest and most thorough investigation of bacteria in milk was made by the Connecticut experiment station in 1894. One sample of morning's milk was found to contain 94,000 bacteria in one cubic centimeter. Milk from the same source drawn in the evening and sampled the next morning (twelve hours older) contained 6,364,000 bacteria per cubic centimeter. Curdled milk contained as high as 980,310,000 bacteria per cubic centimeter. The summary of the investigation in relation to the bacteria in milk is as follows:

The number of bacteria in milk increases very rapidly with the age of the milk. This increase is most rapid when milk is kept warm, as warmth is favorable to the growth of the organism. Cooling milk as rapidly as possible and keeping at a low temperature hinders the development of the germs.

The number of bacteria in milk as ordinarily sold may vary from thousands to millions per cubic centimeter. The smallest number found in milk sold in Middletown was eleven thousand per cubic centimeter, and the largest number was nearly eight and a half millions. As there are 946 cubic centimeters in a quart, these figures mean that the milk had from ten million to eight billion (eight thousand million) bacteria per quart.

The presence of only a small number of bacteria in milk indicates care and cleanliness in its handling and storage, and also that it is comparatively freshly drawn. Sour milk and ripened cream contain many millions of bacteria in a cubic centimeter.

## PRESERVATION.

Milk is one of the most perishable foods on the market. Sometimes in one day, usually in two, and always in three days, its properties are so changed as to make it valueless as a food for man. Much before that time its value may be lessened and its palatability and digestability decreased by a change of a portion of the milk sugar into lactic acid. For the nourishment of infants, aged milk should undoubtedly be rejected, although it contain less than sufficient lactic acid to be perceptible to the taste. The change of milk sugar into lactic acid commences with the activity of the first microbe finding an entrance to the milk, and ends only with the exhaustion of the food or the production of an amount of acid poisonous to the microbe which formed it. The amount of lactic acid which may be formed before perceptible to the taste is about three-tenths per cent.

In August and September, 1896, a number of samples of market milk were examined for acidity. The milk was collected in the morning, and the examination concluded before noon on the same day. Whenever possible the milk was separated into night and morning milk, on the testimony of the driver. Evidently a part of the milk was a mixture of night's and morning's, and some not as represented. Nothing is known regarding the age of train milk.

Hopkins and Powers' method for the determination of acidity in milk and cream was used (see proceedings twelfth annual convention, Association of Official Agricultural Chemists), and the results recorded in number of cubic centimeters of N-10 sodium hydrate required to neutralize twenty cubic centimeters of milk and also in the amount of lactic acid in percentage.

	CC N <sub>10</sub> NaOH for 20 CC Milk.	Per- centage Lactic Acid.
Collected from wagons August 26th.—		
Morning milk from A.....	3.6	.16
Night milk from A.....	3.8	.17
Cream from B.....	3.6	.16
Morning milk from B.....	2.8	.12
Morning milk from B.....	2.5	.11
Morning milk from C.....	3.0	.13
Morning milk from C.....	2.8	.12
Morning milk from D.....	3.4	.15
Night milk from D.....	3.8	.17
Morning milk from E.....	2.6	.12
Night milk from E.....	2.8	.12
Milk from F.....	2.4	.11

	C C N <sub>10</sub> Na O H for 20 C C Milk.	Per- centage Lactic Acid.
Collected from wagons Sept. 8, 1896.—		
Cream from A.....	4.0	.18
Morning milk from A.....	3.4	.15
Night milk from A.....	4.2	.19
Cream.....	3.0	.13
Morning milk from B.....	3.2	.14
Night milk from B.....	2.2	.10
Cream from C.....	2.4	.11
Milk from C.....	3.4	.15
Morning milk from D.....	3.4	.15
Morning milk from D.....	3.0	.13
Morning milk from E.....	3.6	.16
Morning milk from E.....	3.4	.15

The following samples represent milk shipped from Northfield, Minn., to St. Paul; sampled at St. Paul depot at 11 a. m., kept on ice, and examination finished by 3:30 p. m.:

Milk from A.....	2.8	.12
Milk from A.....	3.2	.14
Milk from B.....	3.0	.13
Milk from B.....	4.0	.18
Milk from C.....	2.6	.12
Milk from C.....	3.2	.14
Milk from D.....	3.4	.15
Milk from D.....	2.4	.11
Milk from E.....	2.6	.12
Milk from E.....	2.2	.10
Progress in souring—		
Milk 544 as received.....	3.4	.15
Milk 544 six hours after.....	3.4	.15
Milk 544 twenty-four hours after—curdled.....	12.4	.56
Milk 477 as received.....	2.2	.10
Milk 477 six hours after.....	2.6	.12
Milk 477 twenty-four hours after—sour but not curdled....	10.4	.45

Jules and Stokes find that milk containing .4 to .49 per cent lactic acid is sour to the taste. Farrington, in September number (1896) "Journal of American Chemical Society," states that milk containing three-tenths per cent or over of lactic acid will either taste or smell sour.

In my work sample B from Northfield, containing less than two-tenths per cent, indicated age by smell, but not by taste. Samples containing four-tenths per cent were decidedly sour, as shown by both taste and smell. Not as much variation was found in samples of morning's and night's milk as might be expected. In fact, a greater difference might be expected in milk collected from different dairymen and subjected to different conditions.

In handling and transporting milk, to insure its reaching the consumer in good condition, but two precautionary measures are necessary, viz.: First—Guard the avenues to the entrance of bacteria. Second—Retard their proliferation. To prevent contamina-



tion with an excessive number of bacteria requires close attention to an hundred details, but may be summed up in the one phrase—cleauliness in the dairy. Their multiplication may be checked in a number of ways, but most conveniently with the average dairymen by low temperature. Bacteria of all species thrive best at a temperature from 90° to 100° F., and their proliferation is almost stopped below 50° and above 150° F. The principle involved is, then, to cool the milk as soon as convenient after milking and keep in that condition until it reaches the consumer, which should be within twelve hours. Freezing the milk has been resorted to in some places with success. Transporting milk heated to 160°F. in special cars provided with heating apparatus has been tried with marked success between Hamburg and Berlin, Germany. The distribution of pastuerized milk (milk heated to 155° F. for fifteen minutes to one-half hour and rapidly cooled), in air-tight bottles, has found much favor in our own state. Sterilization (heating to boiling temperature) is favored by some people. This process, however, should be employed only by the consumer; never by the dealer, unless especially ordered. (For advantages and disadvantages of these processes and illustrated methods, see fifth biennial report of this commission.) It may be observed that pasteurization and sterilization are mainly used to protect the consumer from impure milk—to destroy disease-producing bacteria. Far preferable would it be if milk in its natural state could be guaranteed pure, fresh, nutritious, and wholesome.

Methods of preservation of milk by the use of chemical antiseptics, which are either known to be harmful or not demonstrated under all conditions to be harmless, is most unreservedly to be discountenanced and condemned. It is a matter in which the people of Minnesota can take some pride that such preservatives are little, if any at all, used in this state, although their use is not infrequent in England and the eastern part of the United States, although prohibited by stringent laws.

In order to secure milk in suitable condition for the market the following conditions, as stated by the United States Department of Animal Industry, should prevail on the dairy farm:

A roomy, clean, dry, light, and well-ventilated stable or cow house. To produce good milk cows must be comfortable, and these conditions not only add to their comfort, but are absolutely necessary to keep them in the best of health.

Healthy and clean cows, which appear well-fed and contented.

An abundance of pure water, to which cows are given access at least twice a day.

Feed of good quality; the grain and coarse fodder should be free from dirt, decay, or a musty condition.

A spirit of kindness toward the stock, exhibited by everyone employed about them, and gentleness of the animals themselves.



Provision for washing and sterilizing or scalding all utensils which come in contact with milk.

Provision for straining, aerating, and cooling the milk in a clean atmosphere, free from all stable and other odors. This treatment should take place immediately after the milk is drawn from each cow.

Facilities for storing the milk and keeping it cool.

Especially great cleanliness in regard to everything connected with the dairy. The atmosphere of the stable should be pure and free from dust when milking is being done. Employes should carefully wipe the udders and wash their hands before milking, and should be in clean clothes. Whitewash is a good disinfectant, and should be seen in many more stables, and land plaster should be sprinkled about to absorb moisture and odors. The cow should stand on clean litter and not dirty stuff which could be used nowhere else.

It might be added that it would be advisable to have all cows tested for tuberculosis by the tuberculin test. In buying animals this should never be omitted, and should be made a condition of the sale for the dairymen's own protection. Considering the relation which fresh air and sunlight bear to the health of the animals, special attention should be given to these details in the construction of cow barns. A cow needs to be supplied with 12,000 cubic feet of fresh air in order to maintain the air at the recognized standard of purity. Each cow should be allowed at least 1,000 feet of air space.

#### COMMERCIAL VALUE.

The variation in quality of milk is generally recognized but not sufficiently understood. When a milk is so deficient in fat as to appear blue in color, or so rich in fat as to appear yellowish, the housekeeper easily distinguishes between skim milk and cream. All grades of milk between these extremes pass current for milk, whether it contain three or six per cent of fat, ten or sixteen per cent of solid nutriments. All milk between these limits is sold at the same price, under the assumption that it is the same article because secreted by the cow.

All other commodities are sold according to quality; why not milk? Unquestionably the purchaser is entitled to milk of fair quality and nutritious value, irrespective of the fact of its being the normal product of a cow. Manifestly, the only just way of marketing milk is to grade and sell it according to quality, as determined by fat content. This method is already used in creameries and cheese factories, but perhaps neither the public nor the dairymen are as yet prepared to apply the same principle to market milk. By examination of the table showing the average quality of milk sold in St. Paul by months, and also the individual milkmen's record, some idea may be had of the quality of milk the purchaser should receive for his money. The only protection against ignorance and fraud which the milk consumer has is the

laws of the commonwealth. Our state has established a standard for fat and solids, or rather a minimum percentage of fat and solids allowable in an article sold for pure milk. This standard is 13 per cent of solids and 3.50 per cent of fat. It is higher than that of most states or countries defining the composition of pure milk. The states of Massachusetts and New Hampshire have practically the same standard as Minnesota for total solids.

There is a little incongruity in our double standard. The standard for solids is slightly higher comparatively than our standard for fat. Thirteen per cent of solids would correspond to a milk containing about 3.75 per cent of fat. The Massachusetts standard has given good satisfaction.

Geo. M. Whitaker, executive officer of the Massachusetts Dairy Bureau, favors their high standard, and in a paper read before the state board of agriculture in December, 1895, shows that thirteen per cent of solids represents the average quality of milk. He claims a reduction would be injurious to the majority of farmers who produce standard milk, in three ways—by increasing competition through an enlarged supply, by reducing the price on account of an increased surplus, and by decreasing consumption.

A high standard tends to raise the quality of milk supply, while a low standard tends to lower it. The consumer is protected by a high standard. This, in the absence of facilities for marketing milk according to its exact value, is the best protection any law can give. Experience in the judicious enforcement of the Minnesota laws has shown that our standard is none too high. There is no doubt but that it has aided materially in making possible the present excellent condition of the milk market and the average high standard of quality of Minnesota milk.

#### STANDARD FOR MINNESOTA STATE FULL CREAM CHEESE.

That section of the dairy law of our state regulating the sale of cheese authorizes the use of a stencil brand upon full cream cheese, such brand bearing the device or motto "Minnesota State Full Cream Cheese." For the purpose of defining full cream cheese a standard of composition as expressed by the ratio of fat to solids—in other words, the percentage of fat in the dry cheese—was adopted. This standard was fixed at forty per cent of fat to solids; not that this figure expressed the desirable or even the average ratio in cheese, but that it was safely lower than the minimum percentage of fat in dry cheese made from normal milk. We may also infer that the standard then adopted was as high as the law-makers deemed advisable, in view of Minnesota conditions at that time.

In my first report as chemist of this commission I advocated a higher standard for full cream cheese. Facts and figures were given showing that the present standard was low—far too low; that it should be raised to at least fifty per cent of fat to solids, and that it could be so raised with injustice to none and to the great advantage of the Minnesota cheese maker. Again, in the fifth biennial report, I called attention to the injustice of the low standard and the importance of a higher one. The legislature to which this report was submitted passed a bill raising the standard, but as the bill was found to be encumbered with provisions having the effect of annulling in part our efficient filled cheese law, it encountered the governor's veto. This leaves the definition of full cream cheese as false and inadequate as when framed. In this report I wish to again present the importance of this subject; review the evidence before given relative to what may be considered a just standard for full cream cheese in Minnesota, and also add such additional facts and figures as two more years of investigation have brought to light. But, first, it may be profitable to review the laws of other states scarcely less interested than are we upon this subject.

New York at one time possessed a law defining full cream cheese, but repealed the law, and now demands only that it be made from "full milk." New Jersey and Wisconsin also possessed laws defining full cream cheese which are now either annulled or repealed. Ohio passed, in 1892, a most inefficient, indefinite, and irrational law, which, as near as it may be interpreted by the aid of chemical knowledge and a fertile imagination, recognizes four grades of cheese: "Ohio Full Cream," made from pure unskimmed milk; "Ohio State Cheese," made from milk containing seventy-five per cent of its original fat; "Ohio Standard," made from milk containing less than seventy-five but more than forty per cent of the original fat, and "Ohio Skimmed," made from milk containing less than forty per cent of its original fat. Partly owing to the ambiguity of this law and the impossibility of its enforcement, another law was made in 1894 annulling most of the provisions of the law of 1892. This law recognizes but one kind of cheese, that made from full milk. However, a previous law passed in 1888, and according to the attorney general of the state still in force, allows of the sale of skim cheese properly labeled. So the status of cheese legislation in Ohio is at present very ambiguous and unsatisfactory. It amounts to no restriction whatever in the sale of cheese made without addition of foreign fat.

New York and Wisconsin recognize two qualities of cheese: "Full cream cheese," made from "full milk," and skimmed cheese. New York and Ohio allow the private brand of "Pure Milk Cheese" on cheese made from "full milk."



## BASIS FOR STANDARD.

It will be noticed that in most states no attempt is made to define full cream cheese other than to designate that it be made from "full milk." This is an excellent definition, but means nothing. It is impossible to tell the exact fat content of milk after it is made up into cheese. It is difficult in many cases to distinguish by chemical analysis normal milk from adulterated milk. Especially is this true in dealing with "strippings," or very rich milk from which a portion of fat has been taken. On account of this difficulty, among other reasons, arbitrary standards of purity are adopted.

It may be understood, then, that the chemist should need to be a prophet also to tell from the examination of cheese made from portions of this milk the exact nature and quality of the original milk. The problem were easier were two ingredients entirely incorporated in the cheese, or if the losses in manufacture were constant. But this is not true. Not only is the percentage of loss different with each cheese-maker using different methods, but the individual cheese-maker, following as near the same method as possible, encounters a variable loss as new conditions arise from day to day.

Even were it practicable to judge of the quality of milk from cheese into which a portion of its ingredients are incorporated, still it would not be a good standard, as such standard should, if possible, be an attribute of the goods sold,—to be reexamined,—produced in court,—and above all represent actual fact as nearly as possible, thus allowing of no technical and legal struggles or conflict of expert testimony. The Ohio standard, in attempting to recognize grades of skim milk from which cheese was manufactured, emphasized, although it did not exaggerate, the defects of the system.

A standard based on the fat in cheese is a better one. The chief objection is that such a standard would signify one thing in a green cheese, another in a ripened one; one thing in a cheese made for immediate consumption, another in export cheese; one thing as the sample was freshly taken, another as it had been exposed to air and heat and dessication. That is, the percentage of fat would be governed by the percentage of water present. The standard that avoids this, the best and only rational system on which to base a standard, is that proposed by our state, namely, the percentage of fat in the dry matter or the ratio of fat to solids. This leaves an opening for filling with water only, an adulteration sometimes but not often practiced, and which, moreover, can be readily distinguished by an observant buyer.



## CONFUSION OF NAMES.

The name full cream cheese is a misnomer. As all persons who have even a meager understanding of the manufacture of cheese know, most varieties of cheese are made from milk alone. Only a few fancy and mostly foreign brands, as Neufchatel, are made from cream. Yet the name full cream has been so grafted on the knowledge of the people that even state authorities seize upon the high-sounding and seductive name to parade their product. The only justification for such practice is that in the case of full cream cheese, as in "white wine" vinegar, the public are not deceived, and the original article is practically foreign to our markets.

## DESIRABILITY OF RICH CHEESE.

The whole object of the fixation of a high fat standard for cheese is based upon the following facts:

1. A cheese rich in fat has a desirable flavor, taste, and aroma not as noticeable in a cheese deficient in fat.

2. A full cream cheese is of a proper texture; a skim cheese is hard, brittle, and dries quickly.

3. A cheese rich in fat has a greater dietary value, especially when eaten alone; that is, it has a proper nutritive ratio. A skim cheese is deficient in heat forming elements.

4. A full cream cheese, properly ripened, is easily digestible. Skim cheese is not nearly so digestible.

5. All the desirable qualities of cheese from a dietary standpoint, as regards physical appearance, palatability, feeding value, and digestibility, improve with increase in fat content at least to the point when the amount of fat equals in amount the other solids.

6. In view of these qualities full cream cheese is in demand and commands a higher price.

## IMPORTANCE OF A HIGH STANDARD TO THE CHEESE MAKER.

Without taking space to argue in detail propositions patent to all, I submit that such a standard is best for Minnesota cheese-makers which is low enough to permit all of them to manufacture legal cheese and high enough to exclude from our market partially skimmed cheese or cheese purposely made from very inferior milk. Such a standard is best because in pandering to the taste, it improves the reputation of "Minnesota State Full Cream Cheese" at home and abroad. It will, by improving the quality of all cream cheese sold, increase the consumption of cheese, therefore the de-

mand and value. It will so change present conditions that the Minnesota dairymen will not be obliged to compete with those cheese-makers of other states who, by the inefficient laws of their own state, are enabled to sell unrestricted on our markets inferior cheese with a state brand of purity. It protects the natural advantages of the Minnesota dairymen.

#### A JUST STANDARD.

In considering the problem, "How high may we justly fix our standard?" we must consider at least two points from a chemical standpoint:

First—The percentage of fat in dry cheese made from milk of known composition.

Second—The usual percentage of fat in factory milk.

The first point cannot be answered definitely. As previously stated, the fat in cheese depends not only on the fat in the milk but upon losses in manufacture. These losses are governed by the process used, the season of the year, and conditions as they arise from day to day. A close approximation of the relation of the composition of cheese to the composition of milk may be derived from data secured in three ways,—theoretically, experimentally, and analytically. In arriving at a conclusion from the first method, we must assume we are dealing with a milk of average composition and allow for average loss in manufacture. The experimental method is based upon analyses of milk and the cheese made therefrom. Aside from the fact that the cheese are in most cases made by expert cheese-makers, this is the most valuable of the three methods.

The method by which we obtain the most data is the analysis of cheese made in our own and other states. This is also the most practical, as it brings it home to the local cheese-maker and the conditions under which he works. Its only fault lies in the fact that we must assume that he works with unskimmed milk.

#### RESUME OF THE FACTS PRESENTED IN PREVIOUS REPORTS.

*Theoretical*—Largely based on an experiment conducted at the Iowa Agricultural College, showing loss of fat and casein in cheese manufacture. It was found that a milk containing 3.50 per cent of fat should make up into a cheese containing 51.9 per cent of fat to solids. This milk skimmed to 2 per cent of fat should make up into a cheese containing 40 per cent of fat to solids, our present standard.

*Experimental*—From results obtained by the Iowa Experiment Station in the manufacture of cheese from milk of known composition, from partially skimmed milk to milk with cream added, the following figures were derived:

	Per cent of Fat in Milk.	Per cent of Fat to Solids in Cheese.
1 .....	1.75	37.3
2 .....	2.49	43.8
3 .....	3.07	49.0
4 .....	3.58	53.0
5 .....	4.05	55.1
6 .....	4.07	55.3
7 .....	4.20	58.2
8 .....	4.61	59.8
9 .....	4.98	62.5

It will be noticed that milk reduced by skimming to 1.75 per cent fat, or one-half of our legal standard for milk, can be manufactured into a cheese almost complying with our state standard for full cream cheese. No. 4, just within the standard for fat, makes a cheese containing 53 per cent of fats to solids. Both closely agree with the calculated figures.

The Minnesota station found over 40 per cent of fat to solids in a cheese made from milk containing 2.80 per cent of fat, and over 50 per cent of fat to solids in a cheese manufactured from milk as defined by our state statute, namely, containing 3.50 per cent of fat.

#### ANALYSIS OF MARKET CHEESE.

The ratio of fat to solids in cheese inspected and analyzed by the Minnesota Dairy and Food Department is as follows:

	Minneapolis Department.	St. Paul Department
The average of all analysis in 1887-88.....	48.33	42.36
The average of all analysis in 1889-90.....	50.14	50.13
The average of all analysis in 1890-92.....	49.66	49.48
The average of all analysis in 1892-93.....	48.90	50.99
The average of state fair cheese 1892-93.....	47.42	51.10

It should be remembered that these analyses include many cheese which were manufactured from partially skimmed milk, but which the chemist must report as full cream.

From the evidence as presented the following conclusions were drawn: That cheese made from legal milk would make up into a cheese containing at least 50 per cent of fat to solids; that this standard would not be unjust to any Minnesota cheese-maker, and would, if adopted and judiciously enforced, increase the demand for "Minnesota State Full Cream Cheese" at home and abroad.

ADDITIONAL EVIDENCE OF THE JUSTICE OF A FIFTY PER CENT  
STANDARD.

While the facts as heretofore recorded can lead to but one conclusion, some additional evidence can now be presented, derived from the investigation of the composition of cheese and milk made by New York and Canadian authorities. These investigations, although made with no intention of furnishing data upon which to fix a just standard for full cream cheese, nevertheless are most instructive when calculated to the system of classification of cheese in use in Minnesota.

The plan of the New York investigation was as follows: Under the supervision of an instructor cheese was made in different factories; samples of the milk, whey, and cheese sent to the chemist of the New York Experiment Station and there analyzed. The cheese sampled and analyzed in this investigation represents the product of forty-eight factories in eight different counties. These counties produce most of the cheese manufactured in New York state. The milk analyzed represents the product of about 14,000 cows, largely native but with good representatives of the various grades, especially Holstein and Ayrshire. A few pure-bred herds are also represented. The duration of the investigation was seven months. These months practically limit the season of cheese-making—April to October, inclusive. They also include those months during which milk invariably runs low in fat.

The following table, condensed from 144 pages of figures required to record the results of this investigation, shows the highest and lowest percentage of solids and fat in milk in each month, together with the average for the entire month. The last column shows the percentage of fat in the dry solids in the cheese made therefrom. These figures also show the maximum, minimum, and average in each month:



*Table Showing Relation of Composition of Milk to Ratio of Fat to Total Solids in Cheese Made Therefrom.*

MONTHS.	Per cent of Fat in Milk.			Per cent of Solids in Milk.			Per cent of Solids, not Fat in Milk.			Ratio of Fat to Solids in Cheese.		
	Least.	Greatest.	Average.	Least.	Greatest.	Average.	Least.	Greatest.	Average.	Least.	Greatest.	Average.
April .....	3.30	3.50	3.39	11.70	12.07	11.91	8.40	8.63	8.52	52.74	53.48	53.10
May .....	3.30	4.00	3.69	11.88	13.13	12.58	8.58	9.17	8.89	51.10	54.10	52.88
June .....	3.40	3.80	3.63	12.42	12.91	12.74	8.82	9.16	9.06	51.01	54.02	52.74
July .....	3.50	3.80	3.63	12.28	12.82	12.50	8.77	9.02	8.87	52.43	54.19	53.20
August .....	3.75	4.10	3.94	12.43	13.07	12.74	8.68	8.97	8.80	53.70	56.15	55.09
September .....	4.10	4.20	4.15	12.99	13.40	13.26	8.88	9.20	9.05	54.00	54.92	54.45
October .....	4.20	4.40	4.27	13.42	13.72	13.53	9.12	9.35	9.26	53.36	54.15	53.77

It will be noticed that in no case, even in cheese showing the least amount of fat, did the ratio of fat to solids in any month fall below 50, and the average of the least favorable month was almost 53.9. The milk used was certainly no better, and probably not so rich as that produced in this state. (Reference table, cheese inspector's report; Tables II. and III., chemist's report.)

Basing calculations on the average losses of fat, casein, and ash in the manufacture of cheese as found in this experiment and corroborated by results in Canada and Iowa,—namely, fat, 9 per cent; albuminoids, 24.3 per cent; ash, 14 per cent,—and assuming that a milk containing 3.50 per cent of fat contains 2.48 per cent of casein, .69 per cent of albumen, and 0.7 per cent of ash, figures obtained from the average of a large number of analyses, the theoretical ratio of fat to solids in a cheese made therefrom is 51.87,—almost identical with the ratio calculated from data obtained from the Iowa investigation.

The Canadian experiment was conducted along the same line, for the purpose of confirming the results obtained in New York. The milk, however, was divided into two lots (H and L), as it indicated a high or a low fat content, and each lot made up into cheese separately. The samples were taken five times in two months, which constitute a period. The cheese was made by a skilled cheese-maker in one factory only, and represents milk from the same herd of cows. On this account the investigation is less valuable, because not of so general application as the experiment conducted by the New York station.

The ratio of fat to solids, which is not given in the report of the investigation, was figured by Inspector G. G. Sanborn, to whom I am also indebted for the tabulation:

COMPOSITION OF MILK AND CHEESE. *First Period.* (Page 21.)

	PER CENT OF WATER.		PER CENT OF SOLIDS.		PER CENT OF FAT.		Pounds Green Cheese from 100 Pounds Milk.	Ratio of Fat to Solids in Cheese.
	Milk.	Cheese.	Milk.	Cheese.	Milk.	Cheese.		
LOT H.—								
May 2d, average.....	87.995	35.906	12.005	64.090	3.899	32.697	9.91	51.02
May 7th, average.....	87.902	36.010	12.098	63.990	3.685	32.994	9.75	51.56
June 4th, average.....	87.026	34.376	12.973	65.624	4.338	38.144	11.25	58.12
June 6th, average.....	86.883	33.457	13.116	66.543	4.655	35.991	10.91	54.08
June 8th, average.....	87.111	34.931	12.888	65.069	4.000	34.117	10.83	52.40
Average of All.....	87.383	34.936	12.616	65.063	3.915	34.788	10.53	53.47
LOT L.—								
May 2d, average.....	87.924	35.191	12.076	64.809	3.482	34.131	9.25	52.66
May 7th, average.....	88.126	36.142	11.874	63.858	3.193	32.211	9.19	50.44
June 4th, average.....	88.116	35.341	11.884	64.659	3.080	34.196	9.42	52.88
June 6th, average.....	87.758	34.900	12.242	65.100	3.194	35.106	9.92	53.98
June 8th, average.....	87.447	35.752	12.548	64.248	3.564	33.526	10.33	52.18
Average of All.....	87.874	35.465	12.115	64.535	3.302	33.834	9.62	52.43
LOT H.—								
July 5th, average.....	87.392	34.782	12.608	65.218	Second Period.		(Page 25.)	
July 7th, average.....	87.505	34.511	12.495	65.489	3.819	35.786	10.41	54.87
July 31st, average.....	87.295	32.354	12.704	67.646	3.489	32.943	10.25	50.30
August 2d, average.....	86.992	34.255	13.008	65.745	4.016	36.626	9.82	54.14
Average of All.....	87.296	33.975	11.703	66.057	4.075	36.396	10.50	55.31
					3.849	35.438	10.24	53.65
LOT L.—								
July 5th, average.....	88.231	34.862	11.768	65.138	3.140	33.488	9.41	51.41
July 7th, average.....	88.166	35.815	11.834	64.185	2.967	31.640	9.00	49.28
July 31st, average.....	87.857	33.869	12.142	66.131	3.308	33.868	8.83	51.21
August 2d, average.....	88.242	35.376	11.757	64.624	3.197	33.938	9.16	52.52
Average of All.....	88.124	34.980	11.875	65.019	3.153	33.233	9.00	51.11
LOT H.—								
September 4th, average.....	87.364	35.672	12.636	64.328	Third Period.		(Page 28.)	
September 6th, average.....	87.549	35.361	12.451	64.639	2.887	34.802	10.41	54.10
October 2d, average.....	87.175	34.576	12.824	65.424	3.835	35.442	10.41	51.83
October 4th, average.....	87.744	34.885	12.255	65.115	4.076	35.270	10.83	53.91
November 6th, average.....	86.943	34.125	13.056	65.875	3.692	35.065	10.41	53.85
November 8th, average.....	87.209	33.963	12.791	66.037	3.999	34.949	10.75	53.05
Average of All.....	87.331	34.763	12.669	65.231	3.928	34.965	10.41	52.95
					3.903	35.082	10.53	53.78
LOT L.—								
September 4th, average.....	88.507	36.086	11.487	63.914	3.132	33.032	9.00	51.68
September 6th, average.....	88.552	36.136	11.447	63.864	2.925	32.246	8.91	50.49
October 2d, average.....	87.841	36.038	12.159	63.962	3.512	33.565	10.16	52.48
October 4th, average.....	88.059	35.961	11.940	64.039	3.363	34.112	9.91	53.27
November 6th, average.....	87.682	34.793	12.318	65.207	3.382	33.818	9.94	51.86
November 8th, average.....	87.978	34.882	12.022	65.118	3.428	33.992	9.41	52.01
Average of All.....	88.103	35.649	11.896	64.349	3.290	33.461	9.55	52.00

In but one case does the ratio fall below 50, and this was in a cheese made from selected poor milk in early July. Even this milk, containing less than three per cent of fat, made up into a cheese containing 49.28 per cent of fat in the dry cheese.

## QUALITY OF MINNESOTA MILK.

By reference to the report of the cheese instructor, it will be noticed that milk averages at the factory over 3.50 per cent of fat. Two years ago the same result was found. Analysis of milk delivered to butter factories, and also the city milk supply, confirms the fact that Minnesota conditions and Minnesota cows produce as good, and probably better, milk than that produced in any other state or country. Our standard of 3.50 per cent of fat for milk has proven eminently successful. If the standard of Minnesota state full cream cheese was placed on an equal footing, say at least 50 per cent of fat to solids, and such standard judiciously enforced, the result could not but be satisfactory to all concerned. It would protect us from fraud. It would to a certain extent fix the composition and value of all cheese carrying the state credentials. It would increase the demand and widen the market for our product. It would guarantee to us our natural advantages. It would make the motto "Minnesota State Full Cream Cheese" an insignia of good quality.

## DETERMINATION OF FAT IN CHEESE.

Upon request of Prof. S. L. Van Slyke, reporter on dairy products for the Association of Official Agricultural Chemists, I agreed to coöperate with him and others in investigating the accuracy of known methods for estimating the amount of fat in cheese. This subject is of great importance to chemists concerned with the enforcement of dairy laws, and experimental work may still be profitably carried on. Where accurate results were desired the provisional method (Short's method), recommended by the society of Official Agricultural Chemists, has been used in this laboratory. It certainly was a great improvement on all preëxisting methods, and leaves the fat in excellent condition for examination. Great care must, however, be exercised to use more than sufficient anhydrous copper sulphate to combine with the water present. If even traces are carried into the ether solution, the determination of volatile soluble acids, by whatever process, will be low. Anhydrous and alcohol free ether only should be used.

Four methods were proposed by Professor Van Slyke.

- I. Provisional method.
- II. Provisional method modified.
- III. Extraction of fat after drying.
- IV. Babcock test.

A determination of the fatty acids as suggested was also made.



## DESCRIPTION OF METHODS.

I. Provisional Method.—A description of the provisional method can be found in Bulletin No. 46 of the United States Department of Agriculture, Division of Chemistry, on page 37, under "Determination of Ether Extract."

II. Provisional Method Modified.—use a test-tube containing a perforation in the bottom, or in place of this an extraction-thimble of fat-free paper. When a test-tube is used, place at the bottom some extracted cotton, or glass wool, or asbestos, and, in addition, wrap the lower end outside with filter paper to prevent particles of asbestos or copper sulphate being carried down through the perforation into the extraction flask. Pack the prepared tube as follows: Put first a mixture containing equal parts of anhydrous copper sulphate and pure incinerated sand, filling the tube for about two inches. Avoid packing too tightly. Upon this place a little asbestos or other suitable material. Then is placed the sample of cheese which has been weighed out for analysis. It is very convenient to place the weighed sample in a little cone of copper foil or of filter paper and slip this into the top of the tube containing the copper sulphate.

The extraction is carried on as usual. After extracting five hours the cheese is removed and the partially extracted cheese is ground with pure sand in a mortar. This partially extracted cheese is brittle, and grinds up about as easily as a dry cracker. After grinding with the sand the cheese is replaced in the tube and the extraction continued ten hours longer. In the grinding there is no danger of loss of fat, because the cheese is largely extracted in five hours, and little fat remains in the residue that is ground.

III. Extraction of Fat After Drying.—Weigh out two to five grams of cheese, dry at a temperature of boiling water for ten hours and then extract with ether. After extracting five hours remove the cheese and grind with some incinerated sand. Replace in extraction flask and continue for ten hours longer.

IV. Babcock Test.—Eight grams of cheese are weighed into calibrated cream bottles and with the addition of water submitted to the Babcock test as operated in the examination of cream.

## DETERMINATION OF TOTAL ACIDS IN CHEESE.

Weigh out about ten grams of cheese, agitate this vigorously with nearly 100 cubic centimeters of water at a temperature of 100° Fahrenheit; filter; make up filtrate of 100 cubic centimeters; titrate portions of 25 cubic centimeters of the filtrate with the standardized solution of sodium hydroxide, preferably a tenth-normal solution. Use two different indicators for comparison—phenolphthalein and cochineal. Report the amount of actual sodium hydroxide used for one gram of cheese.

The estimation of fat in a cheese sent by Professor Van Slyke by the different methods proposed resulted as follows:

## FAT.

	Grams. Taken.	Fat Re- covered.	Per centage on Original Sample.	Per centage on Dry Cheese.	Acidity of Extracted Fat.
I. Provisional method.....	5.8285	2.2655	38.87	.....	.0121
Duplicate .....	5.8445	2.2500	38.48	.....	.0123
Mean .....	.....	.....	38.68	50.41	.....
II. Provisional method, modified..	5.6660	2.2440	39.60	.....	.0119
Duplicate .....	4.7170	1.8800	39.85	.....	.0103
Mean .....	.....	.....	39.73	51.77	.....
III. Extraction of fat after dry- ing ten hours.....	5.2960	2.1180	40.00	52.05	.0170
*Duplicate .....	3.6060	1.4520	40.26	52.27	.0170
Mean .....	.....	.....	40.13	52.16	.....
IV. Babcock test.....	.....	.....	40.05	.....	.....
Duplicate .....	.....	.....	39.83	.....	.....
Mean .....	.....	.....	39.94	52.06	.....
*Filtered ether extract after first extraction.					



	MOISTURE.		Per	Per
	Grams Taken.	Dry Cheese.	centage of Moisture.	centage of Solids.
First determination.....	5.2960	4.0685	23.56	76.44
Duplicate .....	3.6060	2.7775	22.98	77.02
Mean .....	.....	.....	23.27	76.73

## ACIDITY.

(About twelve grams cheese taken). Acidity of one gram cheese with phenolphthallein .00488 grams Na. O. H. With lacmoid and cochineal,—alkaline.

More valuable deductions can be drawn from this work when the result of the other chemists engaged in the investigation can be compared with it. My results indicate, however, that not quite all the fat is extracted by the method now in use; that extraction of fat after drying extracts material other than fat. The modified provisional method is perhaps more exact, yet is tedious. The Babcock is exact and correct enough for commercial work, but it has the disadvantage of requiring a separate weighing for moisture determination and leaves the fat in no condition for examination. This is a considerable defect where examinations must be made for filled or lard cheese.

I believe that some material other than fat is also extracted in the modified provisional method, and that the correct percentage of fat is between the figures obtained by the modified and provisional method.

## CHEESE EXAMINED FOR FOREIGN FAT.

Glycerol No.

McClenand, filled, sold for full cream.....	3.67
Wood Bros., filled, sold for full cream.....	5.97
John Wickey, filled.....	5.80
C. Marvin, filled.....	4.40
E. J. Piggot, filled, sold for full cream.....	3.50
Marvy Cream Co., filled.....	2.10
C. L. Voigt, filled, sold for New York full cream.....	1.70
N. Darquest, legal cheese.....	26.35
E. A. Jensen, legal, sold for full cream.....	24.65
Andrew Schoch, legal.....	22.60
George Bradbury, legal, sold for Wisconsin full cream.....	21.35
John Wagner, legal, sold for full cream.....	22.00
Eugene Holmes & Co., legal, sold for full cream.....	28.20
G. H. Kartack, legal.....	20.00
O. I. Grotts, legal, sold for full cream.....	25.60
Wells-Stone Mercantile Co., legal.....	22.00
Messick & McCauly, legal, sold for cheese.....	27.50
Messick & McCauly, legal, sold for cheese.....	22.90
Messick & McCauly, legal, sold for cheese.....	26.40
T. J. Anderson, legal, sold for Wisconsin full cream.....	28.40
Smith, Cores & Co., legal.....	26.25

Glycerol No.

Kenyon Produce Co., legal, sold for cheese.....	27.55
J. Wilkey, legal, sold for cheese.....	25.90
J. Wilkey, legal, sold for full cream.....	27.35
C. Marvin, legal.....	26.75
Odell & Eddy, legal, sold for full cream.....	24.60
Messick & McCaully, legal, sold for cheese.....	28.50
Cross, legal, sold for cheese.....	25.60
Cross, legal, sold for cheese.....	25.90

## LARD SUMMARY.

Pure lard .....	57 or 42.54 per cent.
Compound lard.....	55 or 41.04 per cent.
Lard and beef fat.....	20 or 14.91 per cent.
Lard and water.....	1 or .76 per cent.
Lard substitute .....	1 or .75 per cent.
Totals .....	<hr/> 134 or 100.00 per cent.

## RESUME OF LARD INSPECTION

No.	Date.	Dealer.	City or Town.	Name of Manufacturer.	Brand.
1894.					
12	Sept. 30.	Gottswold & Harnie.	West Duluth.	Pioneer Packing Co.	Eagle
10	Aug. 30.	Ed. Dormedy.	Duluth	Unknown	None
28	Oct. 10.	J. R. Duff.	Duluth	Unknown	None
26	Oct. 10.	J. W. McCabon.	Duluth	Unknown	R. Range 26.
32	Oct. 10.	Morris & O'Mera.	Duluth	Unknown	None
33	Oct. 11.	E. R. Rubenack.	Duluth	Unknown	None
9	Sept. 21.	Holm & Nelson.	Minneapolis	Unknown	None
10	Sept. 21.	North Star Prov. Co.	Minneapolis	Unknown	Home Made.
11	Sept. 21.	Yerxa Bros.	Minneapolis	Unknown	None
12	Sept. 21.	Yerxa Bros.	Minneapolis	Unknown	Eagle
14	Sept. 24.	E. N. Dunham.	Minneapolis	Pioneer Packing Co.	Eagle
15	Sept. 24.	W. H. Seaton.	Minneapolis		Eagle
18	Sept. 26.	Moss & Jackson.	Minneapolis	Pioneer Packing Co.	Eagle
65	Oct. 18.	C. A. Couch & Co.	Minneapolis		Home Made.
66	Nov. 15.	Thos. Mix.	Minneapolis	T. Mix.	
67	Nov. 15.	O. Olson.	Minneapolis	O. Olson.	
68	Nov. 15.	J. M. Dodgson & Son.	Minneapolis	Shakopee	
1895.					
105	Jan. 17.	Cudahy Packing Co.	Minneapolis	Cudahy Packing Co.	Berkshire
1894.					
13	Sept. 21.	T. A. Peterson.	Minneapolis		Eagle
1895.					
511	Feb. 14.	Masher & Mettel.	West Duluth.	Home Made.	None
516	Feb. 15.	J. Wilkz.	Duluth	Minn. P. & P. Co.	Crystal Lard Com.
205	Feb. 15.	H. N. Oakwiz.	Minneapolis		
219	May 7.	A. Peterson.	Minneapolis	J. Schana P. Co.	Pure Leaf.
221	May 7.	L. Will.	Minneapolis	Swift & Co.	Silver Leaf.
222	May 8.	Stanley & Morgan.	Minneapolis		None
225	May 8.	Fred Schulz.	Minneapolis		None
226	May 8.	J. Hanson.	Minneapolis	Sinclair	Kettle Rendered.
228	May 8.	Peter Mitchell.	Minneapolis		
232	May 10.	R. A. Fletcher.	Minneapolis		
233	May 13.			Hammond	Pure Leaf.
234	May 13.	C. Sarders.	Minneapolis	Hammond	Kettle Rendered.
241	May 18.	Pioneer Grocery Co.	Minneapolis	National Beef Co.	Calumet
242	May 18.	Hans A. Shol.	Minneapolis	G. H. Hammond.	Calumet
247	May 22.	K. Aslson.	Minneapolis	Wilson, Morris & Co.	Purity
249	May 24.	W. S. Waldron.	Minneapolis	Swift & Co.	Silver Leaf.
250	May 24.	Mrs. W. S. Waldron.	Minneapolis	Cudahy Packing Co.	Rex
253	May 28.	Blichfeldt & Halverson	Minneapolis	J. Merrill & Co.	Pure Leaf.
258	May 28.	John Fobs.	Minneapolis	Am. Packing Co.	A. P. Co. Pure.
259	May 29.	Claus Muller.	Minneapolis	Minnesota P. Co.	Pure Leaf.
262	May 31.	Yerxa Bros.	Minneapolis	Unknown	None
264	June 7.	P. S. Pasha.	Minneapolis	Cedar Rapids P. Co.	White Forest.
.....	June 19.	O'Leary & Co.	St. Paul.	O'Leary	Pure Lard.
268	July 8.	L. C. Hinch.	Minneapolis		Berkshire.
270	July 17.	C. B. Ward.	Minneapolis		None
9	Sept. 30.	De Witt & Pfeister.	Austin	Minnesota Prov. Co.	Pure Lard.
20	Oct. 3.	O. J. Dickens.	Dexter	La Crosse P. Co.	Pure Lard.
23	Oct. 4.	G. J. Conell.	Grand Meadow.	Armour & Co.	Pure Lard.
7	Oct. 4.	Knoll & Co.	St. Peter.	Armour & Co.	Vegitole
8	Oct. 4.	Z. P. Hedberg.	St. Peter.	T. M. Robinson.	Choice K. L.
30	Oct. 7.	Milner & Elbest.	Duluth	Cudahy P. Co.	Rex
36	Oct. 9.	Grunseth & Oleson.	Duluth		Silver Leaf
41	Oct. 10.	L. Lumling.	Duluth	G. H. Hammond & Co.	Calumet Leaf
57	Oct. 17.	Thoreson & Lawyer.	Duluth	Swift & Co.	Calumet
2	Oct. 2.	Young & Munn.	Mankato	Cudahy & Co.	Rex
3	Oct. 1.	J. S. Cooper & Co.	Mankato	Sioux City P. Co.	Woodbury Leaf
4	Oct. 1.	F. L. McCaddem.	Mankato	Swift & Co.	Silver Leaf.
5	Oct. 1.	G. F. Hallman.	Mankato	G. A. Hormell.	Pure Leaf.
10	Oct. 10.	Holmes Bros.	Cannon Falls.	Cudahy & Co.	Pure Leaf.
67	Oct. 17.	Thos. Chapel.	Houston	Chapel's Rendering.	Pure Kettle Rendered.
74	Oct. 18.	J. B. Williams.	La Crescent.	La Crosse P. Co.	Rex
60	Oct. 17.	A. Kaneczny	West Duluth.	Cudahy & Co.	Red Star.
68	Oct. 18.	L. Masucci	Duluth	Cudahy & Co.	Silver Leaf.
70	Oct. 21.	H. C. Burns.	Duluth	Swift & Co.	Lard
81	Oct. 23.	B. J. Tobin.	Duluth	B. J. Tobin.	Drummond Bros.
86	Oct. 24.	Cox Bros.	Duluth	Swift & Co.	Silver Leaf.
92	Oct. 25.	D. Martino & Co.	West Duluth.	Cudahy & Co.	Rex
96	Oct. 28.	A. Bergin.	Duluth	Nelson Morris.	
G. 2	Oct. 25.	Yerxa Bros.	St. Paul.		

## AND ANALYSES.

Sold as	Bech's Test.	Ether Washed Deposit.	Iodine Absorption.	Crystallization.	Re-Crystallization.	Character of Sample.
Lard .....	Medium reduction.	57.3	Beef fat.	.....	.....	Compound lard.
Vegetable lard....	Heavy .....	63.2	Beef fat.	.....	.....	Compound lard.
Lard .....	Heavy .....	82.9	Beef fat.	.....	.....	Compound lard.
Lard .....	Marked .....	65.9	Beef fat.	.....	.....	Compound lard.
Lard .....	Marked .....	83.5	Beef fat.	.....	.....	Compound lard.
Lard .....	Marked .....	80.0	Beef fat.	.....	.....	Compound lard.
Lard .....	Marked .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Marked .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Marked .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Slight .....	.....	Beef fat.	.....	.....	Lard and beef fat.
Pure lard.....	No .....	.....	.....	.....	.....	Lard.
Pure lard.....	No .....	.....	.....	.....	.....	Lard.
Pure lard.....	Marked .....	.....	Beef fat.	.....	.....	Not pure lard.
Pure lard.....	Marked .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef & cotton seed.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Slight .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Slight .....	.....	.....	.....	.....	Lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	No .....	.....	.....	.....	.....	Lard, very dirty.
Pure lard.....	No .....	.....	.....	.....	.....	Lard.
Pure lard.....	Slight .....	.....	.....	.....	.....	Lard.
Pure lard.....	Slight .....	61.5	.....	.....	.....	Lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	Heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Leaf lard.....	Slight .....	.....	.....	.....	.....	Lard.
Pure lard.....	No .....	.....	.....	.....	.....	Lard.
Pure lard.....	No .....	.....	.....	.....	.....	Lard.
Lard .....	Heavy .....	.....	Beef fat.	.....	.....	Pure lard.
Lard .....	Heavy .....	51.4	Beef fat.	.....	.....	Compound lard.
Lard .....	Heavy .....	31.0	68.4	Beef & mutton fat.	.....	Compound lard.
Lard .....	No .....	.....	.....	.....	.....	Compound lard.
Lard .....	No .....	.....	.....	.....	.....	Pure lard.
Lard .....	No .....	.....	.....	.....	.....	Lard.
Lard .....	No .....	.....	.....	.....	.....	Lard.
Lard .....	Medium .....	.....	.....	.....	.....	Compound lard.
Lard .....	Heavy .....	.....	.....	.....	.....	Compound lard.
Lard .....	No .....	59.4	Beef & cot. seed oil.	.....	.....	Compound lard.
Pure lard.....	No .....	.....	.....	.....	.....	Pure lard.
Pure lard.....	No reduction.	.....	.....	.....	.....	Compound lard.
Pure leaf lard....	No reduction.	.....	.....	.....	.....	Lard.
Pure lard.....	No reduction.	.....	.....	.....	.....	Lard.
Pure lard.....	Marked reduction.	.....	.....	.....	.....	Lard.
Vegetole .....	Very heavy .....	.....	Beef fat.	.....	.....	Compound lard.
Pure lard.....	No .....	.....	Beef & cot. seed oil.	.....	.....	Lard substitute.
Lard .....	No .....	56.0	70.0	Beef fat.	.....	Lard.
Lard .....	Marked .....	98.0	59.3	Beef fat & lard.	Beef	Compound lard.
Lard .....	No .....	.....	.....	Beef, lard & cot. seed	Beef	Compound lard.
Lard .....	No reduction.	.....	.....	Beef fat.	.....	Lard.
Lard .....	Med. h'vy reduction	.....	.....	Beef fat.	.....	Compound lard.
Lard .....	Med. h'vy .....	.....	.....	Beef fat.	.....	Compound lard.
Lard .....	Very slight .....	52.0	61.6	Beef fat.	.....	Lard.
Lard .....	Very slight .....	17.0	62.4	Beef fat.	Beef and lard.	Lard and beef fat.
Lard .....	No .....	.....	.....	Lard	Beef fat.	Lard.
Lard .....	Medium h'vy .....	.....	.....	Beef fat.	.....	Compound lard.
Lard .....	No .....	.....	.....	Lard	.....	Lard.
Lard .....	Very slight .....	69.0	.....	Beef fat.	.....	Lard and beef fat.
Lard .....	Very slight .....	22.0	.....	Beef fat.	Beef and lard.	Lard.
Lard .....	Heavy .....	.....	.....	Beef fat.	.....	Compound lard.
Lard .....	Slight .....	33.0	59.7	.....	Beef and lard.	Lard and beef fat.
Lard .....	No .....	.....	.....	Beef fat.	.....	Lard and beef fat.
Lard .....	No .....	.....	.....	Beef fat.	.....	Lard.
Lard .....	No .....	15.0	62.7	Lard	.....	Lard and beef fat.
Lard .....	No .....	88.0	56.0	Beef	.....	Lard and beef fat.
Lard .....	No .....	124.0	59.7	Beef	.....	Lard and beef fat.



## RESUME OF LARD INSPECTION

No.	Date.	Dealer.	City or Town.	Name of Manufacturer.	Brand.
	1895.				
W.	10 Oct. 25	W. A. Tilden	St. Paul	Swift & Co.	None
10	Oct. 21	B. B. Hart & Son	Minneapolis	Unknown	Kettle Rendered.
11	Oct. 21	Yerxa Bros. & Co.	Minneapolis	J. T. McMillan	Diamond
12	Oct. 21	Yerxa Bros. & Co.	Minneapolis	Nelson, Morris & Co.	Rex
13	Oct. 22	E. Steendahl & Co.	Minneapolis	Cudahy P. Co.	Silver Leaf
14	Oct. 23	Norbeck & Norman	Minneapolis	Swift & Co.	Prince
15	Oct. 24	Fellows & Metcalf	Minneapolis	Schank P. Co.	M. P. Co.
16	Oct. 28	Minnetonka Prov. Co.	Minneapolis	Minn. Prov. Co.	M. P. Co.
17	Oct. 28	Minneapolis Prov. Co.	Minneapolis	Minn. Prov. Co.	Ar. Fam. Lard.
18	Oct. 28	Columbia M. Market.	Minneapolis	Armour P. Co.	Pure Leaf.
19	Oct. 28	C. F. Witte	Minneapolis	A. A. Baker	C. M. M.
20	Oct. 28	Columbia M. Market.	Minneapolis	Columbia M. Market.	Kettle Rendered.
21	Oct. 31	Weld Bros.	Minneapolis	Twin City P. Co.	Silver Leaf
22	Oct. 31	Levin Bros.	Minneapolis	Swift & Co.	Calumet
23	Nov. 5	H. H. Chamberlain	Minneapolis	G. H. Hammond & Co.	Silver Leaf
24	Nov. 6	Worthingham Bros	Minneapolis	Swift & Co.	K. & R.
25	Nov. 7	Keller & Roenisch	Minneapolis	Keller & Roenisch	F. J. E.
26	Nov. 8	F. J. Essene	Minneapolis	F. J. Essene	Coin Special.
27	Nov. 9	J. P. Kinkel	Minneapolis	G. H. Hammond & Co.	Silver Leaf
28	Nov. 12	L. Will	Minneapolis	Swift & Co.	White Label.
29	Nov. 25	Gannon Grocery Co.	Minneapolis	Armour P. Co.	Household
30	Nov. 25	Gannon Grocery Co.	Minneapolis	Armour P. Co.	Kettle R. L. L.
31	Dec. 4	H. M. Pryts	Minneapolis	J. Schank P. Co.	White Label.
32	Dec. 5	Geo. Ballheim	Minneapolis	Armour P. Co.	E. V.
33	Dec. 14	Ed Vana	Minneapolis	Ed Vana	Calumet
34	Nov. 19	Mester & Fitzer	Minneapolis	G. H. Hammond & Co.	Silver Leaf
35	Nov. 20	H. J. Danu	Minneapolis	Swift & Co.	Sweetheart
36	Nov. 6	O. A. Berg	Duluth	Minnesota P. Co.	White Frost.
37	Nov. 11	S. C. Miller	Duluth	Cedar Rapids	Rex K. R.
38	Nov. 14	Hern Bros.	Reno	Cudahy P. Co.	Pure Lard.
39	Nov. 14	Lunder & Kester	Wabasha	Amazon	Pure Lard.
40	Nov. 15	Colby Bros.	Lake City	J. E. Mahony	Pure Lard.
41	Nov. 20	Burnister & Miller	Wells	Unknown	Pure Lard.
42	Dec. 20	O. C. Thorp	Minneapolis	G. H. Hammond & Co.	Home Made.
43	Dec. 20	S. A. Pearson & Co.	Minneapolis	Minnesota P. Co.	Sweet Hearts
44	Dec. 26	S. E. Olson Co.	Minneapolis	Cudahy P. Co.	Rex
	1896.				
XX	April 11	C. M. Rice & Co.	Austin	Unknown	None
A. H.	May 22	Yerxa Bros.	St. Paul	Cudahy Packing Co.	Rex
73	May 25	O. J. Lund	Minneapolis	A. Honigschmidt	None
74	May 25	J. M. Dodgson	Minneapolis	Schank Packing Co.	None
75	May 25	John Monahan	Minneapolis	Swift & Co.	Silver Leaf
76	May 26	Gannon Grocery Co.	Minneapolis	G. H. Hammond & Co.	Calumet
77	May 26	J. B. Johnson	Minneapolis	Ole Nelson	None
78	May 27	F. W. Kraus	Minneapolis	Cudahy Packing Co.	Rex
79	May 27	S. E. Jackson	Minneapolis	G. H. Hammond & Co.	Coin Special.
80	May 28	Minneapolis Prov. Co.	Minneapolis	Minneapolis Prov. Co.	Own Make.
81	June 4	Chas. H. Hooper	Minneapolis	John Morrell & Co.	Pure Lard.
82	June 6	Yerxa Bros. & Co.	Minneapolis	Minnesota Packing Co.	Sweet Hearts.
83	June 6	Minnetonka Prov. Co.	Minneapolis	Minnetonka Prov. Co.	Own Mark.
84	June 10	O. Nelson	Minneapolis	O Nelson	None
85	June 12	J. A. McGlashan	Minneapolis	Jacob Ettel	None
86	June 16	T. Tharalson	Minneapolis	Swift & Co.	Silver Leaf
87	July 16	H. W. Preston	Minneapolis	G. H. Hammond & Co.	Coin Special.
88	July 17	John A. Doll & Co.	Minneapolis	A. Beyer	None
89	July 18	Meinke & Blomquist	Minneapolis	T. M. Sinclair & Co.	Choice Kettle Lard.
90	July 20	John W. Wilson	Minneapolis	G. H. Hammond & Co.	Calumet
91	July 22	Northwestern Beef Co.	Minneapolis	Northwestern Beef Co.	Pure Kettle Lard.
92	July 22	Cudahy Packing Co.	Minneapolis	Cudahy Packing Co.	Rex
93	July 22	National Beef Co.	Minneapolis	National Beef Co.	Calumet
94	July 22	National Beef Co.	Minneapolis	National Beef Co.	Coin Special.
95	July 27	Joe H. Oys	Minneapolis	Joe H. Oys	None
96	July 27	Yerxa Bros.	St. Paul	Nelson, Morris & Co.	Supreme
97	July 29	J. T. McMillan	St. Paul	J. T. McMillan	None
98	Aug. 18	Armour Packing Co.	St. Paul	Armour Packing Co.	White Label.
99	July 8	Minneapolis Prov. Co.	Minneapolis	Minneapolis P. Co.	None
100	July 14	S. Bergquist	Minneapolis	G. H. Hammond & Co.	Calumet

## AND ANALYSES.—Continued.

Sold as	Bechi's Test.	Ether Washed Deposit.	Iodine Absorption.	Crystallization.	Re-Crystallization.	Character of Sample.
Compound lard ...	Heavy reduction..	.....	.....	Beef fat.....	.....	Compound lard.
Pure lard.....	Heavy ..	.....	.....	Beef fat.....	.....	Compound lard.
Pure lard.....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Very heavy ..	.....	.....	Beef ..	.....	Compound lard.
Lard .....	Heavy ..	99.0	65.7	Beef and lard.	Beef and lard.	Compound lard.
Lard .....	Slight ..	32.0	61.1	.....	Beef ..	Beef and lard (fat).
Lard .....	No ..	.....	.....	.....	Beef and lard.	Lard.
Lard .....	Slight ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	Beef and lard.	.....	Lard.
Lard .....	Heavy ..	.....	.....	Beef fat.....	.....	Compound lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Heavy ..	.....	.....	Indefinite ..	.....	Compound lard.
Lard .....	Slight ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Heavy ..	.....	.....	Beef fat.....	.....	Compound lard.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	Slight ..	42.0	60.9	Beef and lard.	Good beef.	Compound lard.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	Indefinite ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	66.0	62.3	Beef and lard.	Beef and lard.	Lard and beef fat.
Lard .....	Marked ..	.....	.....	Indicates lard.	.....	Compound lard.
Lard .....	Marked ..	.....	.....	Beef fat.....	.....	Compound lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Heavy ..	.....	.....	Indefinite ..	.....	Compound lard.
Lard .....	Slight ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	61.0	61.8	Beef and lard.	Beef and lard.	Lard, beef, water.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Heavy ..	.....	.....	Beef and lard.	.....	Compound lard.
Lard .....	Heavy ..	.....	.....	Beef and lard.	.....	Compound lard.
Lard .....	Pronounced ..	70.0	62.9	Beef fat.....	.....	Compound lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Beef and lard.	.....	Lard.
Lard .....	Heavy ..	.....	.....	Beef ..	.....	Compound lard.
Lard .....	No ..	.....	.....	Lard, extra good.	.....	Lard.
Lard .....	Heavy ..	.....	.....	Beef and lard.	.....	Compound lard.
Lard .....	No reduction.....	.....	.....	Lard ..	.....	Lard.
Lard .....	Marked reduction..	.....	.....	Beef and lard.	.....	.....
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Reduction.	.....	.....	.....	.....	Compound lard.
Lard .....	No reduction.....	.....	.....	.....	.....	Lard and beef fat.
Lard .....	No reduction.....	.....	.....	.....	.....	Lard and beef fat.
Lard .....	Marked reduction..	.....	.....	.....	.....	Compound lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Pure lard.....	No ..	.....	.....	Lard ..	.....	Lard.
Pure lard.....	No ..	.....	.....	.....	.....	Lard and beef.
Pure lard.....	No ..	.....	.....	.....	.....	Lard and beef.
Pure lard.....	No ..	.....	.....	.....	.....	Lard and beef.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Slight ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	No ..	.....	.....	Lard and beef fat.	.....	Lard.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard and beef fat.
Lard .....	No ..	.....	.....	Lard ..	.....	Lard.
Lard .....	Marked ..	.....	.....	.....	.....	Compound lard.
Lard .....	No ..	.....	.....	.....	.....	Lard and beef fat.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	Marked ..	.....	.....	.....	.....	Compound lard.
Lard .....	No ..	.....	.....	.....	.....	Lard and beef fat.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	.....	.....	Lard and beef fat.
Lard .....	No ..	.....	.....	.....	.....	Lard.
Lard .....	No ..	.....	.....	.....	.....	Lard and beef fat.

## BAKING POWDER.

Baking powder is a distinctive product of the nineteenth century. Its discovery and use is in harmony with the spirit of progress of our age. The first attempt at bread-making is probably associated with the infancy of man, but the exact date is as problematical as his origin. At first, through how many centuries we may only guess, bread was made without "leaven"—the "unleavened bread" of the scriptures. Yeast was the first agent used in raising dough. Without knowledge of what it was or why it worked, by experimental methods only, both ancient and modern people have used this organized vegetable ferment, to science known as *Torula cerevisiae*. Its structure must of necessity remain unknown until the discovery of the microscope. In 1680 Leeuwenhoeck found yeast to be a mass of living globules, but he had not the slightest conception of the fact that they were living organisms. This fact Caignard de la Tour elucidated in 1836. With this observation as a basis was established the first principles of what is now holding firm sway over the medical world,—the germ theory of disease. Pasteur, the biochemical genius of the nineteenth century, illuminated the subject with his early thought, demonstrating more clearly the relation of the products formed to the activity of cell life and extending the principle of the agency of life to all forms of fermentation and decay. Although established by empiricism and continued practically without improvement until our time, in the use of yeast we have to-day in many respects the best method of aerating dough.

The action of the yeast ferment depends on its ability to decompose sugar, producing as one of the more elementary substances carbonic acid gas, or, more properly, carbon de oxid, which at ordinary temperature, but more energetically the higher the temperature, seeks to escape, and is partially prevented or retarded by the gluten of the flour. The creation and expansion of the gas and the tenacity of the gluten produce the porous condition so desired, commonly known as the raising of bread. Yeast has an advantage over other leavening agents in the following particulars:

1. A gradual and continuous evolution of gas under almost complete control.
2. The change of a portion of the starch into sugar.
3. The production of a small amount of alcohol.



4. Leaving in the bread the pleasant pungent flavor of yeast.

5. Absence of residual foreign products or chemicals in the baked bread. In this last consideration no attention is paid to the small amount of alcohol and acetic acid generated and not completely volatilized in the oven.

Yeast, on the other hand, has a disadvantage in not being easily procurable in fresh condition; of slowness in action when quick action may be desirable, and of more liability of producing unwholesome bread due to improper cultures of yeast. Some of these difficulties are being daily overcome.

First, compressed yeast was introduced and improved facilities for getting it into the homes of the people almost as soon as made, usually on the same day. The latest improvement is in coating the cakes of compressed yeast with paraffine. This practice has only been tried a few months. As far as may be judged by its limited use it preserves yeast in excellent condition for at least ten days, and probably longer.

#### CHEMICAL BAKING POWDERS.

The imperfections of yeast led to the search for other aerating agents. In 1859 Dr. Douglish invented a system of aeration of bread by incorporating in the dough carbonic acid in solution in water under pressure (soda water). This method, called the Douglish system,\* is still used in England for the manufacture of bread on a large scale.

It is not known just when the employment of chemicals for the production of carbonic acid was first introduced. Without doubt the manufacture of baking powder as a commercial product grew out of the practice of the housewife of using baking soda or "saleratus," and sour milk in the production of waffles, griddle cakes, buns, and such other pastry as requires quick raising and must be baked immediately after mixing.

The trade in baking powder has grown into gigantic proportions. It has a larger sale than any article entering into the composition of food yet not itself a food. Its extensive use may be judged by the advertising it daily receives.

In 1887 the New York Tartar Company estimated that the people of the United States consumed between 50,000,000 and 75,000,000 pounds every year. The consumption to-day is probably still larger. At the least calculation we pay \$25,000,000 annually for this one article.



While there are various kinds of chemical baking powders on the market, all have the same general constitution, viz.: First, a carbonate; second, an acid to act upon the carbonate, eliminating its free gas; third, some inactive substance to separate the active ingredients.

The carbonate may be sodium, potassium, or ammonium carbonate or bicarbonate. The acid may be tartaric, sulphuric, phosphoric, or lactic, sometimes free, but usually in loose combination. The "filler,"—starch, flour, sugar, terra alba, or any other dry inert material.

As an article of commerce, however, the carbonate is represented as sodium bicarbonate, while starch is the usual "filler." Baking powders can most conveniently be classified by their most variable constituent—the acid ingredient. This is the agent that regulates their commercial if not their hygienic value.

So classified, we find:

- |                         |                                       |
|-------------------------|---------------------------------------|
| 1. Tartaric Acid.....   | { Tartaric acid.                      |
|                         | { Cream of tartar.                    |
| 2. Sulphuric Acid.....  | { Alum-potassium or ammonium.         |
|                         | { Bi sulphate of potassium or sodium. |
| 3. Phosphoric Acid..... | { Mono calcium hydrogen-phos-         |
|                         | { Phosphoric acid. [phate.            |

The only forms we need consider are cream of tartar, alum, phosphate, and alum-phosphatic powders, the latter being a combination of alum and acid calcium phosphate.

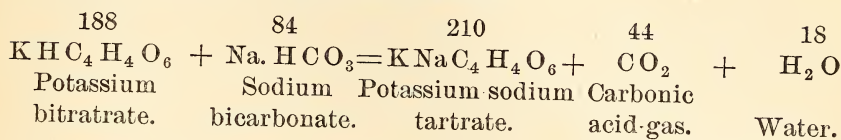
#### CREAM OF TARTAR POWDER.

Tartaric acid is an organic acid produced through the agency of life. It is found, both free and combined, in the vegetable kingdom. Cream of tartar is a potassium salt of tartaric acid, represented by the chemical formulæ  $KH C_4 H_4 O_6$ . It is found in many varieties of fruit, but prepared on a commercial scale only from the grape. It constitutes a large portion of the lees or argol—the residue left after fermentation of grape juice, and is therefore a bi-product in the manufacture of wine. The cream of tartar is precipitated by alcohol formed in the grape juice, in which tartrates are insoluble. The purity of cream of tartar depends upon the care with which it is recrystallized and the purity of the grape juice.

From "plastered" wine, *i. e.*, from wine or grape juice to which lime is added to conceal inferiority or improve quality, as allowed within certain restrictions in France, Spain, and Germany, the cream of tartar obtained is much less pure. The most troublesome impurity is calcium tartrate. Until within a few years it has been

impossible to obtain commercial cream of tartar in even a fair degree of purity. It may now, however, be obtained at least ninety-nine per cent pure.

The reaction of cream of tartar with sodium bicarbonate may be expressed by the following formulæ:



Based on the above formulæ, I have calculated the percentage composition of an ideal cream of tartar powder, assuming that pure chemicals were used and allowing twenty per cent of starch for "filler." This percentage of dry starch will certainly prevent rapid deterioration. Indeed some of the powders on the market containing only from twelve to sixteen per cent of starch, I have found to keep a year with very little loss of gas:

Starch .....	20.000 per cent.
Cream of tartar.....	55.296 per cent.
Sodium bicarbonate.....	24.704 per cent.

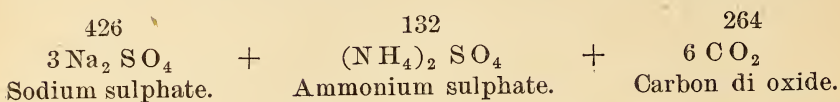
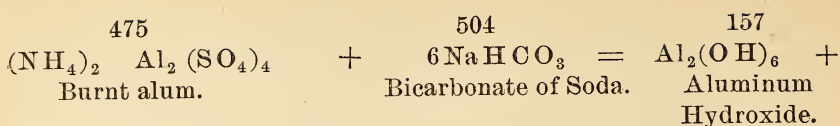
This powder should yield 12,949 of available gas. This is dissipated upon heating. There remains in the bread as a further product of the combination:

Starch filler.....	20	per cent.
Potassium sodium tartrate.....	61.76	per cent. (Rochelle salt.)
Water .....	5.30	
Total .....	87.06	
Carbonic acid gas escaped.....	12.94	
Total .....	100.00	

It will be noticed that in addition to carbonic acid gas there is produced as a product of the union potassium, sodium, tartrate (Rochelle salt), and water. These remain in the bread after baking. There is no baking powder prepared which will not leave a non-volatile residue in the bread.

#### ALUM POWDERS.

In most baking powders in which sulphuric acid is the gas-liberating element the acid is combined with potassium or ammonium and aluminium. These compounds when united with water of crystallization are called potassium or ammonium alum, respectively. In preparing alum for use in the manufacture of baking powder the water of crystallization is largely expelled by heat forming burnt alum. In the case of ammonium alum, the reaction which takes place in an alum powder may be thus represented:



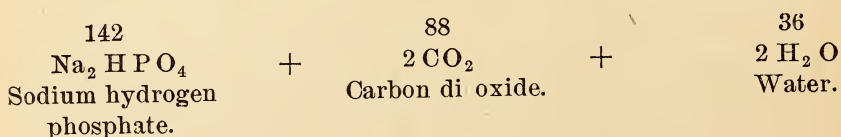
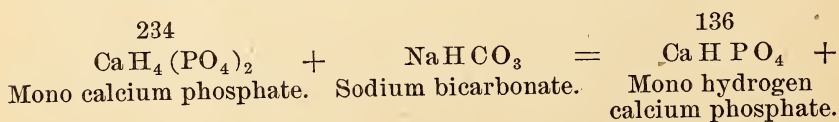
More "carbonic acid" may be evolved from the perfect combination of an alum powder than from the same weight of a cream of tartar powder. It requires 6.2 of the active ingredients of a cream of tartar powder to make one part by weight of "carbonic acid." It requires but 3.7 of alum and sodium bicarbonate to make one part of "carbonic acid." On the other hand, alum powders require more "filler" to prevent deterioration—fifty per cent of starch is not an unusual amount in alum powder as found on the market, and probably this much is required to keep the powders in good condition. Allowing fifty per cent filler, an alum powder can yet be prepared of fair strength and suitable at least as far as leavening capacity is concerned to all purposes for which baking powders are used.

The residue remaining in the bread as a result of the action of an alum baking powder consists of sodium sulphate (Glaubers salt), potassium, or ammonia sulphate, and aluminium hydroxide.

#### PHOSPHATE POWDERS.

The only form in which phosphoric acid is used to free carbonic acid gas is in combination as acido calcium phosphate,  $\text{CaH}_4(\text{PO})_2$ . Owing to different methods of manufacture and impurities there are in commerce many varieties of this salt used in the manufacture of baking powder and in general use as a substitute for cream of tartar. These will be described under the head of adulteration. The pure product only will be considered in this connection. It is, in fact, the only one used in the best grades of phosphatic powders.

The reaction of a phosphate powder is expressed as follows:



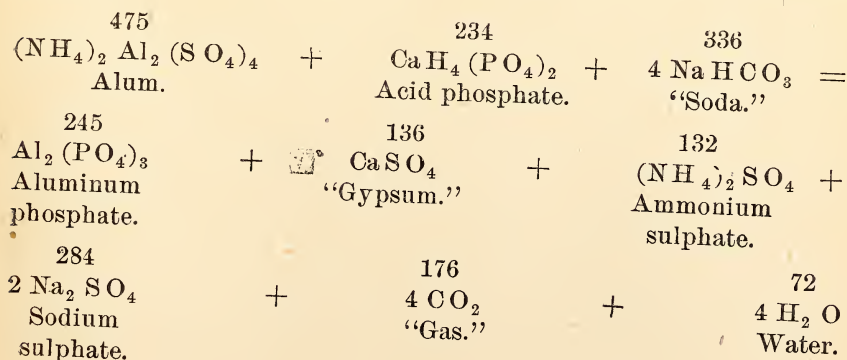
Secondary reactions also take place, so that the above formula must not be construed as being imperative.

Phosphate powders are more liable to lose strength than any other class of baking powders. It has been found impossible to keep them in ordinary tin cans for any length of time without deterioration. Even with a large amount of filler this loss of gas goes merrily on. Air-tight glass bottles have been used with some success, yet after opening the deterioration is rapid. A new method of handling phosphate powders has lately been introduced. It consists of dividing the can into two parts by a partition from the top to bottom of the can. The phosphate and filler is put in one part and the soda in the other. A measuring cylinder in the top of the can automatically measures the correct amount of each ingredient. The constituents are then mixed and worked in the dough as usual. It would seem as if this method, if not too costly or cumbersome, would remove the objectional feature to phosphate powders.

#### ALUM PHOSPHATIC POWDERS.

Not long after the fierce agitation upon the harmfulness of alum powder culminated in the Norfolk case in England, in 1879, mixtures of alum and phosphate powder were introduced. The aim in preparing this mixture was to leave the alum in the bread in the form of the more insoluble alum phosphate, instead of aluminil hydroxide. Presumably the phosphate was expected to aid in the liberation of gas.

The reaction occurring in such a powder would greatly depend upon the relative proportion of the ingredients. Some idea of the combination which takes place may be expressed by the following reaction:





The novelty in the residue of this powder is the introduction of sulphate of lime or gypsum and the replacement of the aluminium hydroxide of the alum powders with aluminium phosphate. The prevalence of this form of baking powder on the market would argue that it had some advantages over "straight" alum powders aside from its supposed hygienic value. Yet all the evidence that can be demonstrated in the chemical laboratory indicates that the amount of phosphate present in most commercial baking powders is not sufficient to more than combine with the aluminium found, and that in all cases the real agent setting free the gas is the sulphuric acid of the alum—not the phosphoric acid of the mono calcium hydrogen phosphate. By reference to the table recording the analyses of baking powder made during the last two years, it will be noticed that the alum powders are as active as the alum phosphate. It is possible, however, that by actual culinary test there is an advantage in a combination powder; possibly in the rapidity and control of the evolution of gas.

#### ADULTERATION AND SUBSTITUTES.

*Cream of Tartar.*—While pure cream of tartar is readily procurable, much that is sold for the genuine article on the market is adulterated. Alum, calcium sulphate, and calcium acid phosphate are not unusual adulterants, while calcium tartrate is a frequent impurity. The cream of tartar retailed by the grocer trade is especially liable to adulteration. The most frequent adulterants, as might be expected, are alum and phosphate. The use of starch as a dilutant is common. Ammonium alum and bisulphate of potash have been sold as pure cream of tartar. Alum is so cheap that it cannot well be profitably adulterated. Alum may, however, be dehydrated at so high a temperature as to volatilize some of the sulphate, reducing its value proportionally. The analyses of market brands would indicate that such often was the case.

*Mono Calcium Phosphate.*—Pure acid phosphate is seldom used in baking powder, as it is relatively expensive. The commercial article takes its place. Classed under the general name of cream of tartar substitutes, there are a number of varieties known to the trade, derived by different methods of manufacture. They may be divided into two typical classes. One class consists of goods prepared by treating calcium phosphate, usually in the form of bone black, with sufficient sulphuric acid to produce mono calcium phosphate and calcium sulphate, filtering off the calcium sulphate and evaporating the solution of mono calcium phosphate to crys-

tallization, mixing with starch, drying and grinding. The resulting product is chiefly a mixture of mono calcium phosphate with starch, but invariably contains some free or uncombined phosphoric acid (varying from one to six per cent  $P_2O_5$ ), and also a considerable quantity of insoluble phosphates, chiefly calcium but frequently aluminium also. This class of goods is sometimes known as leached goods.

The second class of goods is essentially different in composition, in manufacture, and in use. Pure white bone ash is treated with sulphuric acid and the mixture of acid calcium phosphate and calcium sulphate dried without leaching. This class of goods consists of a large percentage of calcium sulphate (gypsum), proportional in amount to the acid used. This class of goods is known as the "sulphate of lime base" goods. This gypsum, or terra alba, is often considered an adulteration, but it seems to have a valuable function. In a hot liquid the calcium sulphate reacts on the products of the first reaction, liberating more free phosphoric acid, which in turn reacts on the carbonate, liberating more carbonic acid. Thus the efficiency of the powder is increased in two ways—by producing more gas; by desired slowness in the evolution of gas.

The typical composition of these two classes, on the authority of Wadman, is as follows:

	Class 1	Class 2
Moisture .....	4.41	2.42
Mono calcium phosphate, crystallized.....	49.67	29.48
Mono magnesium phosphate.....	2.75	3.54
Free phosphoric acid, hydrated.....	2.02	.73
Insoluble calcium phosphate.....	13.08	8.66
Calcium sulphate (anhydrous).....	.85	48.70
Silica .....	.30	.13
Starch .....	26.00	3.27
Alkaline salts, water of crystallization and undetermined.....	.92	3.07
Totals .....	100.00	100.00

100 pounds will neutralize bicarbonate soda.....	45 {	Hot 48½
		Cold 27½

#### COST OF BAKING POWDERS.

As might be expected, there is considerable difference in the cost of preparation of the various classes of baking powder. The cost of the acid ingredient per pound largely regulates the cost of manufacture, although alum and phosphate powders require less of the acid in liberating a given amount of gas than do cream of tartar powders. This economy in acid can be made up by starch, an inexpensive material. The market quotations for some of the materials used in baking powder are, as found in Menk's report:

Potassium alum, ground in barrels .....	.02½ pound
Burnt alum (dried ex-sicated), domestic .....	.12 pound
Calcium phosphate, mono basic, C. P. ....	1.49 pound
Cream of tartar, chemically pure .....	.90 pound
Cream of tartar, commercial .....	.30 pound
Sodium bicarbonate .....	.20 pound

It will be noticed that pure cream of tartar powders must cost much more to manufacture than other varieties. The material costs more per pound, and double the quantity must be used. Pure phosphate powders rank next in cost of material, while alum powders are the cheapest. Yet there are grades of alum powders. Not only is there less evolution of gas in some powders than others, but the quality of alum used as to purity, dryness, and mechanical condition varies greatly. When we consider the relative cheapness of the materials used in some classes of baking powder we no longer wonder why the purchase of a fifty-cent can entitles you to a fifty-cent prize.

#### RELATIVE STRENGTH.

As mentioned in a different connection, the gas-producing power of a powder is dependent upon the kind of acid ingredient, as well as on the quantity used. If no "filler" were used the various classes of baking powder would, if properly combined with bicarbonate of soda, free carbonic acid gas as follows:

Cream of tartar .....	16 per cent.
Phosphate .....	22 per cent.
Alum .....	27 per cent.
Alum phosphate .....	17 per cent.

As eight to twelve per cent of gas is sufficient for good results, any of the above powders may be advantageously used. Those powders most liable to deteriorate on keeping are sufficiently strong in gas-producing power to allow of the use of a large amount of "filler." In the table accompanying this report the gas-producing power of all brands sampled in Minnesota is given. This table includes almost all brands offered for sale in the state. As the strength of a powder depends on time and condition of keeping as well as on the proportion of ingredients; and as the length of time the sample was kept in stock was not ascertained, it is not assumed that the percentage of ingredients therein found represents the strength of all goods selling under that brand.

#### HYGIENIC CONSIDERATIONS.

The wholesomeness of a baking powder depends upon two things:

First—The toxic effects of the residue remaining in the bread.

Second—The effect of such residue on digestion.



It is reasonable to suppose that the effect of such residue is influenced by its amount as well as its nature.

In cream of tartar powder such residue is potassium sodium tartrate—Rochelle salt.

In alum powder it consists of Glauber salt, potassium and ammonium sulphate, and aluminium hydroxide.

In alum phosphatic, of Glauber salt, potassium sulphate, calcium sulphate, and aluminium phosphate.

The only portion of the residue from alum and alum phosphate powder to which objection is raised is the aluminium salt.

*Cream of Tartar Powder.*—Not taking starch into account, cream of tartar powders leave more residue in the bread than any other class. This residue, Rochelle salt, is used to some extent in medicine; in small doses as a gentle laxative, in larger doses as a purgative. It is the active principle of the popular seidlitz powder. There is every reason to believe that the small quantity produced by the action of cream of tartar baking powder would be quite harmless. Nevertheless, competing manufacturers insist that cream of tartar powders are not immaculately pure; that as a medicine Rochelle salt has a decided therapeutical effect, and to some individuals a poisonous action. The use of Rochelle salt by persons having any tendency to kidney trouble is claimed to have an irritating and deleterious effect.

*Phosphate Powders.*—No voice has as yet been raised against the wholesomeness of phosphate powders. Indeed the residue, sodium and calcium phosphate, is popularly supposed to act as a nerve food or tonic.

*Alum Powders.*—A large amount of evidence relating to the harmful nature of alum powders is given in the fourth and fifth biennial report of this commission, to which those interested are referred. Two things may be said to have been proven:

First—The aluminium present in alum powders remains in the bread as the hydrated salt.

Second—This salt is to some extent soluble in the digestive juices.

The toxic effects of the soluble salt and its influence on the efficacy of the digestive juices have not until lately been demonstrated. Indeed there is still room for more experimental work along these lines.

Mr. Hehner, by artificial digestion experiments ("Analyst," Vol. VII.), finds that aluminium hydrate has as marked injurious effect upon the digestibility of bread, milk, and eggs as has alum. Less



effect was noticeable upon the digestibility of raw flour. From another standpoint he tested the effect of alum by dissolving in water as much baking powder as would constitute a maximum dose in bread. This he drank and gave similar draughts to his assistants. All complained of decidedly uncomfortable if not injurious consequences. As a result of these experiments he arrives at the following conclusion:

That alumed baking powder exerts most injurious effects upon digestion, whether artificial or in the body; that the presence of alum in baking powder must be regarded as an adulteration injurious to health; that samples containing alum should be condemned as injurious, even though magistrates and recorders declare alum to be quite harmless; and that the sodium bicarbonate contained in the baking powder does not neutralize the objectionable qualities of the alum.

It is claimed that these experiments do not justify the conclusions, on the grounds: First—That only gastric digestion as effected by pepsin was represented, while other juices, notably pancreatic, participate in digestion. Second—In the natural digestion experiment the baking powder was taken alone and unnaturally. If compressed in dough or bread, as in actual use, it is reasonable to suppose that its action would be less severe.

Dunstan finds that aluminium hydroxide in bread interferes with the action of diastase (hence with ptyalin, the digestive ferment of the saliva), and with peptic and pancreatic digestion; also, that a three per cent solution of sodium carbonate (the strength of alkali in intestinal juice) will dissolve aluminium hydroxide dried at 100° C. He also claims to have found an aluminium salt in the urine of a man who had eaten one or two grains of aluminium hydroxide dried at 100° C.

Dunstan, Hehner, and Thompson claim that their experiments prove aluminium hydroxide dried at 100° C. to be soluble in two-tenths per cent hydro-chloric acid. This amount of acid is generally accepted to be present in gastric juice. Sutton and Suff, on the other hand, affirm that aluminium hydroxide is not soluble in gastric juice; one being led to this conclusion by experiments with a dialyzer and the other by the action of a very dilute solution of hydrochloric acid (two hundredths per cent, which he regards as the amount present in gastric juice), upon aluminium hydroxide dried at 150° C. This temperature is certainly higher than the interior of bread in the oven, and probably changes a portion, at least, of the hydroxide into oxy-hydroxide.

W. D. Bigelow and C. C. Hamilton, chemists connected with the United States Department of Agriculture, published in the "Journal of the American Chemical Society" the results of an exhaustive set of experiments upon the action of alum, aluminium hydrate and aluminium phosphate upon gastric digestion and also the double digestion with gastric and pancreatic ferments. As before remarked, Mr. Hehner's experiments were lame in this latter particular. The conclusions reached by these investigators is that the presence of alum interferes materially with gastric digestion, but the aluminium seems to be precipitated by the alkali of the pancreatic fluid, so that a portion of the digestion which should be effected by the former ferment is effected by the latter. On the whole, they are led to believe that not considering the toxic action of alum, its influence on digestion has been greatly overestimated.

Aluminium hydroxide had about the same influence on digestion as alum; that is, a marked detrimental effect on peptic digestion and a noticeable but a much less effect upon peptic and pancreatic digestion combined. The authors throw out the caution that, although the influence exerted on the digestion of albuminoids by aluminium hydroxide is very slight, the possible toxic effect of even the small amount of aluminium chloride produced in the gastric juice should not be overlooked.

An unexpected result was obtained with aluminium phosphate. Heretofore all investigators and authorities upon this subject have asserted that those powders which leave the residue in the bread in the form of aluminium phosphate was the safest form in which alum could be used. Cornwall states that the addition of acid phosphate to alum powders may be regarded as an improvement. Crampton says: "That form of alum powder in which sufficient phosphate is added to combine with all the aluminium present is the better form and less liable to bring alum into the system than when alum alone is used." Drew (fourth biennial report of Minnesota Dairy and Food Commission) says, "that the phosphate of aluminium is less soluble than the hydrate is without doubt a fact, and hence there is less likelihood of its solution in the digestive fluids." My own statement in fifth biennial report of Minnesota Dairy and Food Commission is as follows: "The aluminium phosphate is perhaps less soluble in the digestive juices than aluminium hydrate."

Bigelow and Hamilton, in the classic experiment above referred to, conclusively prove that aluminium phosphate, even in the quantity found in bread baked with alum phosphatic powder, is very detrimental to peptic and pancreatic digestion. While aluminium hydroxide in small quantities has an effect on peptic digestion equal to alum, in larger quantities it is not so severe. With alum phosphate even a large amount has as great a retarding effect as the same amount of alum. In stating their conclusions upon this phase of their investigation the authors say: "From these results it appears that the influence of aluminium hydroxide on the digestibility of bread is about the same as an equivalent quantity of alum when present in about the quantity which is usually found as a result of the use of alum baking powder which contains no phosphate."

The action of aluminium phosphate is quite different, however, for notwithstanding the supposed insolubility of this compound ten to twelve per cent of the albuminoids which are digestible in the presence of alum or aluminium hydroxide appear to be insoluble in the presence of an equivalent amount of the phosphate."

An inspection of the table of analyses of baking powder discloses the fact that the alum phosphate class constitutes a large majority of brands sold in this state.

As previously stated, considered chemically, there is no advantage in this form of powder. In point of harmfulness, as judged by the amount of nutrients they render indigestible, they are even more harmful than "straight" alum powders. Yet they are a favorite with the manufacturer, and, it may be inferred, with the cook.

The fact that alum and alum-phosphate powder are in daily use by our large population—among the strong and the weak, the old and the young, the robust and the dyspeptic—with no apparent evil result, is an argument frequently and properly used by supporters of alum powders.

#### LAWS.

Many countries have laws prohibiting the use of alum in bread. Some states prohibit the use of alum in baking powder. The Minnesota law-makers content themselves with a label law requiring all manufacturers of baking powder containing alum to place on the can in large type and in a conspicuous place the words, "This



powder contains alum." The manufacturers of this class of goods claim that this is an unjust discrimination; that, while it may not be the intention of such law, the compulsory labeling of one class of powder is regarded by the public as an insignia of inferiority if not of unwholesomeness. While there may be some reason for this objection, all disinterested persons will agree that the purchaser should have some means of distinguishing between the various classes of baking powder. The public does not wish to demand and pay for an expensive cream of tartar powder and receive a cheap substitute, however efficacious. It makes no difference whether the purchaser was influenced by relative cost of material, wholesomeness of the powder, or efficiency in calling for a cream of tartar powder. Legislation has been contemplated in this state making it obligatory on all manufacturers of baking powder to publish the formula on the label. This procedure would in a measure protect the public, but the objection that has been raised, and probably would again defeat such legislation, is that it infringes on individual rights.

The formula of any valuable article, if the maker evolved it out of his own thought or experience, is his private property. This much, however, I believe the sovereign people may properly demand without abridging the rights of any honest manufacturer—*i. e.*, to compel manufacturers of baking powder to state on the can in a conspicuous way and place the name of the class of powder as represented by the acid ingredient—cream of tartar; alum; phosphate; alum phosphate. Furthermore, they should be obliged to state the minimum percentage of gas the powder is guaranteed to evolve under known and constant conditions.

Laws controlling the sale of commercial fertilizers in the Eastern States are based upon this principle and enforced with satisfaction to the farmers and justice to all.

#### METHODS OF ANALYSIS.

*Available (C O<sub>2</sub>)*—Knorr's apparatus described in Bulletin 13 United States Department of Agriculture, was used for this determination, and his procedure followed in all essential features. The results obtained by this method may not be identical or equivalent to those obtained by actual baking test, but are probably as near as may be obtained with laboratory conditions. They are near enough to very accurately gauge the leavening power of a powder. By closely controlling all conditions the results are concordant,



and one powder can be compared with another. It must be stated, however, that powder containing a large amount of starch, as do the alum powders, inclose more  $\text{CO}_2$  in the viscid liquid and therefore slightly underestimates the strength.

*Excess of Alkali*—The excess of sodium bicarbonate was determined by titration of the residue from available  $\text{CO}_2$  determinate, after dilution, addition of standard acid and boiling. The most satisfactory indicator for all powder is phenol-phthalein. Methyl violet, cochineal, and methyl orange are not applicable.

Lime, sulphuric acid and phosphoric acid were determined by methods recommended by the Association of Official Agricultural Chemists.

*Aluminium*—Aluminium was determined by the ammonia acetate method, used with satisfaction by McGill and rediscovered by Gladding. (Journal American Chemical Society, August, 1896.) I used a modification of this method, essentially that proposed by Gladding. The complete precipitation of the aluminium phosphate, its insolubility in reagents employed and the absence of calcium in the precipitate were established by careful tests. In the use of this method it is very important that the precipitation be completed in a neutral or slightly acid liquid, and in presence of a large quantity of ammonia acetate; that the precipitate be conducted in a cold liquid containing but a very small amount of aluminium.

Contrary to Gladding but in harmony with many other chemists, I find aluminium phosphate soluble in the most dilute solutions of mineral acids. Starch and water were estimated by difference. The insoluble residue sometimes obtainable after digestion with concentrated nitric acid is recorded as insoluble calcium sulphate.

An attempt is made to combine the ingredients as they are associated in the powder. While I recognize that it is impossible to more than approximate the form in which the elements exist, especially in such a complete substance as alum phosphate baking powder, yet it is the only way the public in general can get an intelligent idea of their composition. The alum is combined as  $\text{KAl SO}_4)_2$ . In the powder it is unquestionably partly in basic condition, as may be noticed in the column showing deficiency of  $\text{SO}_3$  when alum is calculated according to usual formula.

In analyses recorded in Tables I. and II., the excess of calcium over that necessary to form  $\text{CaH}_4(\text{PO}_4)_2$  is estimated as  $\text{Ca CO}_3$ .

The excess of  $\text{SO}_3$  was in some cases estimated as  $\text{CaSO}_4$ .

In analyses recorded in Table III., the phosphoric acid ( $\text{P}_2\text{O}_5$ ) found was calculated as the anhydrous mono calcium phosphate  $\text{Ca H}_4 (\text{PO}_4)_2$  and the calcium in the same terms. The excess of phosphate was calculated as phosphoric acid and the excess of lime as calcium phosphate ( $\text{Ca}_3\text{P}_2\text{O}_8$ ). This is not strictly correct, as in all probability all three forms of the combinations of calcium with phosphorous and oxygen, and more, too, are associated in the same powder.

Many thanks are due to Inspector G. G. Sanborn for much of the labor involved in preparing the tables:

TABLE I.—RESUME OF BAKING POWDER ANALYSES.

No.	Brand.	CO <sub>2</sub> .	C In. Oz.	P <sub>2</sub> O <sub>5</sub> .	Ca O.	Al <sub>2</sub> O <sub>3</sub> .	Si O <sub>2</sub> .	Na HCO <sub>3</sub> .	K Al (SO <sub>4</sub> ) <sub>2</sub> .	Ca H <sub>4</sub> (PO <sub>4</sub> ) <sub>2</sub> .	Ca SO <sub>4</sub> .	Ca CO <sub>3</sub> .	Na <sub>2</sub> SO <sub>4</sub> .	Excess Na HCO <sub>3</sub> .	O <sub>4</sub> Cream Tartar.	Starch and Water.	Class.	Label.	
10	Pride of Superior.	6.42							18.19		2.85					60.34	Alum	None.	
299	Queen City.	7.50	90.15		.42	3.39	9.60	18.62	18.19							63.98	Alum phosphate.	None.	
297	Big Dime.	5.70	68.51		3.80	3.12	21.81	14.05	15.79	2.38			3.80	4.70		66.79	Alum	None.	
305	Griswold Big T.	6.20	74.52			2.36	7.04	16.62	11.97		.62			2.01			Alum	None.	
245	Revanse's Best.	9.10	109.38	.14		3.92		19.50	19.83					4.70				None.	
273	Empire	8.11	97.48	3.30		3.34	9.29	20.29	16.90					3.52				None.	
274	Snow Ball.	9.80	117.76	6.03	1.87	5.87	5.02	22.35	25.40	9.95	.22	2.66						None.	
272	Solar	7.27	87.38			4.11	6.78	19.34	10.94		10.41			5.36		59.30	Alum	None.	
283	Vienna Pure C. T.	9.72	116.83	8.52	2.33	3.34	10.19	23.67	16.92	14.04	.51	2.52		5.29		42.02	Alum phosphate.	None.	
291	Yale	8.25	99.16			4.11	12.35	19.22	20.82		.95			3.36		59.01	Alum	None.	
286	Forest City.	8.72	104.81			3.26	11.95	18.85	16.49				3.04			63.02	Alum	None.	
285	Univalled	9.05	108.78	4.05	1.30	4.60	9.53	19.79	23.27	6.68	8.32	1.94		2.40		40.00	Alum phosphate.	None.	
282	Electric Light	7.80	91.75	5.21	.92	3.28	7.03	14.99	16.59	8.60	5.47					54.35	Alum	None.	
287	Silver Standard.	9.48	113.95					24.26						6.04			Alum	None.	
288	Keeler's	9.10	109.38					21.06							35.52		42.62	Alum	None.
284	Special	7.03	84.05			3.55	15.75	18.55	17.96		6.86			5.04		56.63	Alum	None.	
306	Calumet	8.47	101.81	7.14	.92	4.39	10.84	20.90	22.21	11.78	4.98			4.62		40.13	Alum phosphate.	None.	
290	New Chicago.	8.39	100.84	2.81		3.23	6.51	18.31	16.37	4.65	6.17					54.00	Alum phosphate.	None.	
9	Home Made.	7.10	85.34	3.45	.58	3.26	5.76	25.66	16.49	5.70	7.59					44.56	Alum phosphate.	None.	
294	Standard	7.53	90.51			3.97	6.58	19.09	20.19		10.69			5.04		50.63	Alum	None.	
231	Gold Coin.	7.31	87.86														Cream tartar.	None.	
14	Mayflower	7.73												.25		39.24	Alum	None.	
7	Grand U. T. Co.	9.08	109.14					18.93							41.83			Alum phosphate.	None.
3	Lakota	7.05		8.72	1.57	1.14	1.94		5.79	14.40	2.80								None.





TABLE I.—RESUME OF BAKING POWDER ANALYSES.

No.	Brand.	CO <sub>2</sub> .	C In.	Per Oz.	P <sub>2</sub> O <sub>5</sub> .	Ca O.	Al <sub>2</sub> O <sub>3</sub> .	S O <sub>3</sub> .	Na HCO <sub>3</sub> .	K Al (SO <sub>4</sub> ) <sub>2</sub> .	Ca H <sub>4</sub> (PO <sub>4</sub> ) <sub>2</sub> .	Ca SO <sub>4</sub> .	Ca CO <sub>3</sub> .	Na <sub>2</sub> SO <sub>4</sub> .	Excess Na HCO <sub>3</sub> .	K HCO <sub>3</sub> O <sub>4</sub> Cream Tartar.	Starch and Water.	Class.	Label.
10	Pride of Superior.	6.42								18.19		2.85					60.34 Alum	None.	None.
209	Queen City.	7.50	90.15			.42	3.59	9.00	18.02	15.79	2.38						63.98 Alum	phosphate.	None.
297	Big Dime.	5.70	98.51	1.44	3.80		3.12	21.81	14.05	11.97				3.80			66.79 Alum	phosphate.	None.
305	Griswold Big T.	6.20	74.52				2.36	7.04	16.02	19.83		.62			4.70		None.	Alum	None.
235	Reynase's Best.	9.10	106.38	.14			3.92		19.50						2.01		None.	Alum	None.
273	Empire.	8.11	97.48				3.34	9.29	20.29	16.30					4.70				None.
274	Snow Ball.	7.27	117.79	6.03		1.87	6.87	5.02	22.35	25.40	9.95	.22	2.66		3.52				None.
272	Solar.	7.27	87.38				4.11	6.78	19.34	10.94		10.41	.51		5.36		59.30 Alum	phosphate.	None.
283	Vienna Pure C. T.	9.72	116.83	8.52		2.33	3.34	10.19	23.97	16.92	14.04				5.29		42.02 Alum	phosphate.	None.
291	Yale.	8.23	99.16				4.11	12.35	19.22	20.82		.95			3.36		59.01 Alum	phosphate.	None.
286	Forest City.	8.72	104.81				3.26	11.95	18.85	16.49				3.04			63.02 Alum	phosphate.	None.
285	Univalled.	9.05	108.78	4.05		1.30	4.60	9.53	19.79	23.27	6.68				2.40		40.00 Alum	phosphate.	None.
282	Electric Light.	7.80	91.75	5.21	.92		3.28	7.03	14.99	16.59	8.60	5.47					54.35 Alum	phosphate.	None.
287	Silver Standard.	9.48	113.95						21.06						6.04		42.62 Alum	phosphate.	None.
288	Keeler's.	9.10	106.38						24.26							35.52			None.
284	Special.	7.03	84.05				3.55	15.75	18.55	17.96		6.86			5.04		56.63 Alum	phosphate.	None.
306	Calumet.	8.47	101.81	7.14	.92		4.39	10.84	20.90	22.21	11.78	4.93			4.62		40.13 Alum	phosphate.	None.
290	New Chicago.	8.39	100.84	2.81			3.23	6.51	18.81	16.37	4.65	6.17					54.00 Alum	phosphate.	None.
9	Hone Made.	7.10	85.34						13.65										None.
294	Standard.	7.53	90.51	3.45	.58		3.26	5.76	25.66	16.49	5.70	7.59			9.40		44.56 Alum	phosphate.	None.
281	Gold Coin.	7.31	87.36				3.97	6.58	19.09	20.19		10.09			5.04		50.63 Alum	phosphate.	None.
14	Mayflower.	7.78															Cream tartar.	None.	None.
7	Grand U. T. Co.	109.14							18.93	5.79	14.40				.25	41.83	39.24 Alum	phosphate.	None.
8	Lakota.	9.08		8.72	1.57		1.14	1.34				2.80							None.

TABLE III.  
ANALYSIS OF BAKING POWDER

Number.	BRAND.	Available Carbon Dioxide.	Cubic Inches Per Ounce.	Equivalent in Potassium Alum.	Excess of Soda.	ANALYSIS.					HYPOTHETICAL COMBINATION.										Loss of SO <sub>3</sub>	Loss of SO <sub>3</sub> Expressed as Ca SO <sub>4</sub>	Solution.	Class.	Label.		
						P <sub>2</sub> O <sub>5</sub>	Ca O	Al <sub>2</sub> O <sub>3</sub>	S O <sub>3</sub>	Insoluble Ca S O <sub>4</sub>	Sodium Bi-carbonate.	Potassium Bi-tartrate.	Monocalcium Phosphate.	Insoluble Calcium phosphate.	Free Phosphoric Acid.	Potassium Aluminum Sulphate Anhydrous.	Calcium Sulphate.	Potassium Bi-sulphate.	Starch and Water by Difference.								
03	I. C.	10.00	120.20	.....	.....	2.88	1.42	4.28	10.74	.....	.....	.....	4.36	.....	.....	17.33	.....	.....	.....	3.23	.....	.....	Alum phosphate.	None.			
...	Gold Seal.	10.15	122.00	19.80	.....	.....	Lost.	6.27	13.58	18.30	19.51	.....	.....	.....	.....	29.21	.....	.....	.....	1.65	2.34	Cloudy	Alum	None.			
...	Gold Dust.	10.65	128.01	20.83	.....	.....	3.00	5.77	16.73	17.75	20.47	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Cloudy	Alum	None.			
97	Ideal	5.65	67.91	.....	5.88	.....	.....	.....	.....	.....	16.74	24.30	.....	.....	.....	.....	.....	.....	58.96	.....	.....	.....	Cream tartar.	None.			
78	Unrivaled	9.80	117.80	19.17	4.20	3.95	.....	3.22	9.26	.....	23.04	.....	.....	.....	.....	16.30	.....	.....	60.66	.....	.....	.....	Alum phosphate.	None.			
...	Schrock's Pure Food.	10.00	120.20	.....	1.34	.....	.....	.....	.....	.....	20.56	.....	.....	.....	.....	.....	.....	.....	.....	1.01	1.43	.....	.....	Alum phosphate.	None.		
...	Schrock's Pure Food.	10.10	121.40	.....	.84	.....	.....	.....	.....	.....	20.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Alum phosphate.	None.		
197	Virginia City	10.70	128.61	20.93	3.36	3.33	2.20	3.43	10.43	.....	23.93	.....	4.25	1.64	.....	17.37	.....	.....	52.81	.42	.58	Cloudy	.....	Alum phosphate.	None.		
150	Campbell's	12.00	144.24	23.46	.84	.....	.....	5.27	14.34	.....	23.90	.....	.....	.....	.....	26.67	.....	.....	49.43	2.63	3.73	Clear	.....	Alum	None.		
227	Queen	7.60	91.35	14.87	.00	.....	.....	.....	3.59	14.61	.....	.....	.....	.....	.....	18.18	.....	.....	67.21	.92	1.31	Al. clear	.....	Alum	None.		
80	Zipp's	7.00	84.14	13.69	3.02	5.63	2.30	3.47	7.61	16.47	.....	.....	9.18	.14	.....	17.57	.....	.....	56.64	3.95	5.59	Clear	.....	Alum phosphate.	Alum.		
1	Quarter Dollar.	8.80	105.78	17.21	4.70	.62	7.70	4.85	22.36	.....	21.66	.....	1.02	.....	.....	22.02	18.52	.....	.....	.....	.....	.....	Clear	.....	Alum	None.	
89	Bengal	9.80	117.80	19.17	5.04	4.57	1.60	4.18	13.58	.....	22.81	.....	6.69	.....	.79	21.16	.....	.69	47.83	.....	.....	.....	Clear	.....	Alum phosphate.	Alum and phosphate.	
84	Boston	8.60	103.37	16.82	4.20	.....	.....	3.51	7.96	.....	20.73	.....	.....	.....	.....	17.77	.....	.....	61.50	3.36	5.19	Clear	.....	Alum	None.		
160	Our Best.	9.55	114.79	18.68	4.20	7.58	4.60	4.18	13.58	.....	22.56	.....	9.35	4.17	.....	21.16	.....	.69	42.07	.....	.....	.....	Clear	.....	Alum phosphate.	None.	
170	Yankee	7.30	87.75	14.28	7.56	7.41	4.70	4.01	13.31	.....	21.59	.....	9.74	3.28	.....	20.30	.....	1.08	44.01	.....	.....	.....	Clear	.....	Alum phosphate.	None.	
102	Menu	12.45	149.65	24.35	1.26	6.18	2.40	4.10	Lost.	.....	25.19	.....	10.03	.....	.17	20.74	.....	.....	43.87	.....	.....	.....	Clear	.....	Alum	Alum.	
51	Badger	8.40	100.97	16.43	.....	5.06	2.00	3.18	6.04	16.14	.....	.....	8.35	.00	.00	16.10	.....	.....	59.41	4.73	6.70	Clear	.....	Alum	None.		
103	Kenton	8.20	98.56	16.04	5.04	3.70	.30	4.43	10.56	1.20	20.80	.....	1.25	.....	4.06	22.43	.....	.....	.....	4.02	5.69	Cloudy	.....	Alum	None.		
94	Electric Light.	8.50	102.17	16.63	2.52	5.37	1.90	3.59	7.96	.....	18.86	.....	7.94	.....	.77	18.18	.....	.....	54.25	3.97	5.62	Al. clear	.....	Alum	None.		
10	Best Value.	9.60	115.39	18.78	1.68	.....	.....	3.55	10.29	1.05	20.13	.....	.....	.....	.....	17.97	.....	.....	61.90	.87	1.23	Cloudy	.....	Alum	Illegally labeled alum.		
135	Our Own.	7.85	94.36	15.35	.84	.....	.....	.....	.....	.....	15.93	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Alum	Alum.		
117	Chicago XXX.	10.15	122.00	19.85	3.36	4.82	3.50	3.09	8.92	.....	22.87	.....	5.71	2.96	.....	15.64	.....	.....	52.82	.93	1.32	Al. clear	.....	Alum	None.		
69	Mascot	6.60	79.33	12.91	.84	.....	.....	.....	.....	.....	13.53	.....	.....	.....	.....	.....	.....	.....	86.47	.....	.....	.....	.....	Alum	Alum.		
39	Maglo	7.80	93.76	15.26	4.20	.....	.....	.....	.....	.....	19.19	.....	.....	.....	.....	.....	.....	.....	80.81	.....	.....	.....	.....	Alum	Illegally labeled alum.		
132	Lake Pepin.	8.10	97.36	15.84	1.68	1.98	.90	3.43	7.27	.....	17.25	.....	3.10	.22	.....	17.37	.....	.....	62.03	4.19	5.94	Clear	.....	Alum	Illegally labeled alum.		
166	Jaxon	10.80	129.80	21.12	1.68	5.68	2.40	3.85	7.13	.....	22.44	.....	9.15	.29	.....	19.49	.....	.....	48.63	.....	8.42	Cloudy	.....	Alum	None.		
141	Zephyr	8.50	102.17	16.63	5.88	.....	.....	2.59	12.35	.....	22.22	.....	.....	.....	.....	12.71	.....	6.70	58.37	.....	.....	.....	Clear	.....	Alum and potash bisulphate.	None.	
145	Old Homestead.	9.50	114.19	18.58	5.04	.....	.....	2.68	11.11	.....	23.30	.....	.....	.....	.....	13.57	.....	4.03	59.10	.....	.....	.....	Cloudy	.....	Alum and potash bisulphate.	None.	
111	Hiawatha	8.00	96.16	15.64	7.56	.99	3.50	2.80	11.32	.....	.....	1.63	.....	.....	.....	14.18	4.36	.....	56.89	.....	.....	.....	Clear	.....	Alum	None.	
219	Cook's Own.	9.90	119.00	19.36	8.40	.....	.....	3.55	10.36	.....	27.43	.....	.....	.....	.....	19.49	.....	.....	53.08	2.07	2.93	Clear	.....	Alum	None.		
200	Home	.....	Lost.	.....	1.26	.....	.....	.....	.....	.....	29.89	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	None.	None.	
60	Gold Dust.	5.50	66.11	10.75	19.32	4.81	3.70	.17	2.33	.....	.....	.....	5.40	3.34	.....	.86	.....	2.70	.....	.....	.....	.....	.....	Clear	.....	Phosphate	None.

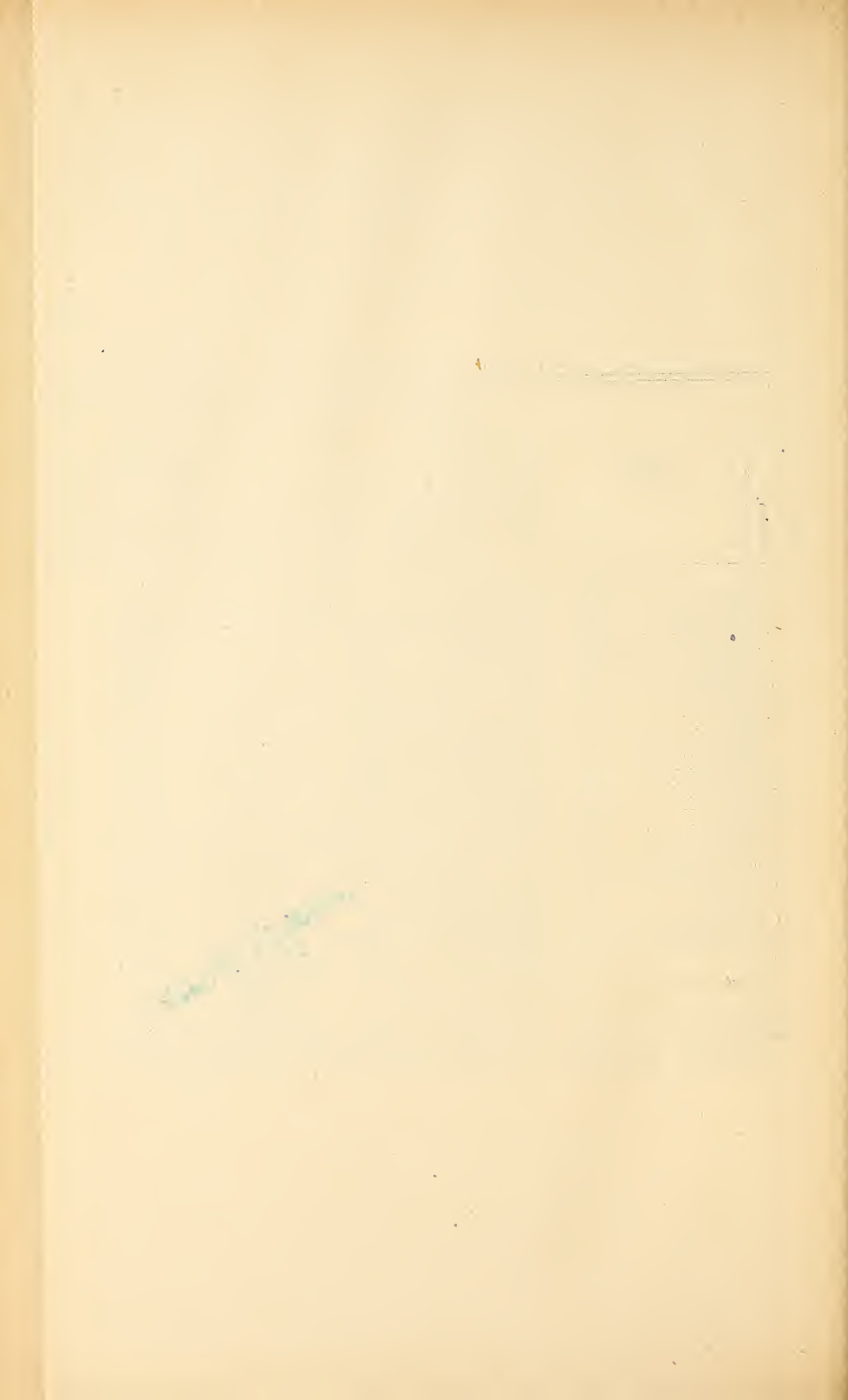


TABLE II.

[illegible]



### "INFANT AND INVALID FOODS."

No apology is offered or needed in advertising the requirements in infant foods. A glance at the reports of the health boards of every state, city, or hamlet showing the mortality of children under two years of age will convince any mind that, in the feeding and care of infants, our people, with all their education, culture, and boasted moral attainments, have advanced little, if at all, beyond the Indian with her papoose, or "bossy" with her first calf.

The question of food for adults is one of comparatively little moment. Learned professors and moral monstrosities fill page upon page of our newspapers and even invade the columns of our magazines with unassailable argument, proving that vegetarianism is the only salvation of our race from disease, from mental and moral degeneration; that animal food is unnatural, cannibalistic, unwholesome, and unnecessary; and they and their opponents have established one fact, viz., that a healthy adult man can exist for a considerable period on either animal or vegetable food exclusively, without perhaps relinquishing all hope of future happiness. Let the babe for one day be fed on improper food, and the next may bring the physician, and the next the "little white hearse." The delicate organism of the child has not been tempered to all conditions, or hardened to abuse as the perverted and misused alimentary canal of the adult.

The laymen in our land are not the only ones that may be accused of ignorance of foods and feeding. The physician, often, has not the instruction and seldom the time, inclination, or apparatus to conduct examinations of infant foods. He must, as do his patients and their nurses, rely on luck and the label on the goods. Even science has not invaded the domain of food for infants with half the energy manifested in the feeding of the calf and steer. Consequently the results, obtained in the study of human dietaries are meager indeed compared with the results obtained in the scientific and systematic feeding of live stock. It is fortunate that some of the results obtained in the investigation of cattle foods and stock feeding can be applied to human dietaries. In justice to our public-spirited men, it may be said that investigation of human dietaries has now been commenced which, in the near future, should bring forth interesting and valuable results. Some of the scientific men in Europe have also succeeded in solving many of the problems in infant nutrition, and it may be said to-day that science is much in advance of the application of scientific methods in the feeding of young.

The death rate in infants is appalling. In England the mortality among infants to-day is said to be scarcely less than in 1840-41, when, out of a total of 350,101 deaths, 76,328 were children under one year of age. According to one authority, twenty per cent of all infants die during the first year of life. It is almost impossible to obtain reliable statistics. The figures furnished by the Massachusetts State Board of Health, and published in the report for 1895, which show the mortality of infants under one year of age calculated with reference to the number of births for the same year, are based on exact and reliable data. The ratio of deaths under one year to living births per 1,000 in 1874 was 164.3; in 1893, 165.3; the average for the twenty years, inclusive, 161.9. This ratio means 160,914 deaths to 993,807 living births. The extremes during the past forty-five years were 119.1 per 1,000 in 1857, and 202.7 in 1872. Aside from showing the enormous death rate, the statistics indicate that, even in the cultured State of Massachusetts, little progress has been made in arresting infant mortality.

Unquestionably the death rate has increased rather than decreased during the past years, owing to the substitution of cow's milk and prepared foods for the natural food of the child.

The Imperial Health Manual of Germany says: "The most frequent illnesses of the first years of childhood are caused by improper nourishment. Many mothers cannot, others will not, suckle their children, whether from motives of health or gain, or, as often happens, from no morally justifiable cause. It is possible for only a few parents in such cases to provide a complete substitute for a wet nurse. The greater majority of these children are entirely deprived of their natural nutriment, mother's milk."

But the disinclination of mothers to suckle their own young is not confined to Germany. It is bounded by no country lines nor confined to any class. It is true that the state of affairs is worse in the ultra-fashionable set, where more attention is paid the poodle than the baby; but of late years natural nursing is on the steady decline in every class of society. It is not alone the aristocrat who shirks this duty nor the woman that gains her livelihood in a factory, but in every walk of life, in the country and in the city, are infants constantly denied their natural food. It is refreshing to hear of late years of a few of the leading ladies of our land setting a humane example in the rearing of young, for, unless nature is more closely followed in this respect, the laws of atrophy will render the artificial feeding of infants not a convenience but a necessity.

While unhealthfulness in mothers, and the countless ills to which children fall a natural heir, are factors that make the mortality among infants so terrible, statistics prove that it is in great measure due to improper nourishment, or lack of nourishment. The first fact that confronts us is that the Angel of Death hovers most menacingly over the cradles of artificially fed infants.

In Berlin the mortality statistics show that, in 10,000 deaths, three-fourths were artificially fed.

Minert, in Bavaria, states that out of 400 deaths of children from summer diarrhea that came under his observation, ninety-six per cent were nourished artificially.

Hope's investigations in England disclosed that only three per cent of 1,000 deaths were breast-fed.

Dr. Nivan, in the "Yorkshire Post," England, states that of 500 children who died from diarrhea in Manchester in the months of August and September, 1895, 485 were hand-fed.

Dr. Ashby says that children fed upon cow's milk, either entirely or partially, during the first three months of their lives are fifty times as liable to die of diarrhea as other infants.

But statistics of this nature do not tell the whole story, as improperly fed infants may be so unfortunate as to live and drag out an unhappy or miserable existence for a greater or less number of years, tracing their defective physical condition to partial starvation during the formative period.

It is known that the ratio of deaths in the wealthy classes among infants nursed by mothers is less than in the poorer classes in the proportion of 57 to 357. This more favorable showing for the wealthier classes is claimed to be due to a healthier condition in mothers. While this may be one factor, in the opinion of the writer it is in greater part due to more favorable environments and the better care and attention which infants receive.

But among artificially fed infants in the poorer classes, where even more dense ignorance is manifested than in the circles of the moneyed class,—where food is often bought because it is cheap, and skim milk, condensed milk, and other starvation diets regularly administered,—the "slaughter of the innocents" has no parallel in the reign of Herod. Somewhere I have read statistics of the mortality of infants in the crowded tenement houses in New York City, and now the returned missionary's pathetic recital of the sacrifice of children on the Ganges during a season of religious revival fails to arouse interest.

However much we may deprecate the artificial feeding of infants, we must face the conditions as we find them. The nursing



bottle is here, and has evidently come to stay. And if the people thoroughly understood the requirements in infant feeding, and in the place of ignorance and folly, in the light of scientific research, used care and wisdom in the nourishment of young, a check could be placed on baby manslaughter.

Thanks to Nature, whose teachings are always right, we have in mother's milk a typical infant food to imitate. But owing partly to the difficulty of obtaining representative samples, due in no small measure to the high nervous organism of mankind, the recorded analyses show great disagreement.

It is also probable that human milk varies even more than that from other mammals. The following analyses represent averages obtained by competent chemists. The analyses were in most part made in the last few years and include many made during the current year. Those of Sary, Aschman, and Wiley are compiled from all sources and may be given most credence:

Sary (Average of 150 Analyses)—	
Water .....	88.25
Casein .....	.75
Albumen .....	1.00
Fat .....	3.50
Milk sugar.....	6.25
Ash .....	.25
Aschman (Average of 80 Analyses)—	
Water .....	87.02
Protein (casein, albumen).....	2.36
Fat .....	3.94
Milk sugar.....	6.23
Ash .....	.45
Wiley (All Sources)—	
Water .....	88.75
Sugar .....	6.00
Proteids ...	1.50
Fat .....	3.45
Ash .....	.30
Watts and König—	
Water .....	87.65
Solids .....	12.35
Proteids .....	3.07
Fat .....	3.91
Sugar .....	5.01
Ash .....	.17
König—	
Water .....	87.41
Fat .....	3.78
Casein .....	2.29
Milk sugar.....	6.21
Ash .....	.31
"Annali di chimica e di farm"—	
Water .....	87.71
Fat .....	4.38
Protein .....	1.54
Sugar .....	5.75
Ash .....	.53



Blyth—

Milk fat.....	2.90
Casein .....	2.40
Albumen .....	.57
Peptone .....	.10
Sugar .....	5.87
Ash .....	.16
Water .....	88.00
Total solids.....	12.00
Solids not fat.....	9.10

Obviously the nearest substitute for mother's milk must be sought for in the milk of some other mammal. Wily, in "Principles and Practice of Agricultural Analyses" (1896), has compared human milk with the milk of the more common domestic animals. If we accept as equal the evidence of other analyses of human milk, his figures for protein and ash are probably somewhat low:

	Water.	Fat.	Sugar.	Proteids.	Ash.
Human .....	88.70	3.45	6.00	1.50	.30
Cow .....	86.90	4.00	4.80	3.60	.70
Goat .....	85.70	4.75	4.45	4.30	.80
Ass .....	89.50	1.75	6.25	2.00	.50
Mare .....	90.75	1.20	5.70	2.00	.35
Sheep .....	80.80	6.85	4.90	6.55	.90

As compared with cow's milk, human milk is somewhat lower in fat, considerably higher in milk sugar, and markedly lower in protein and ash. Referring to some of the other analyses of mother's milk, it will be noticed that the difference in proteids is largely due to the low percentage of casein, which in cow's milk averages 2.48. But all the difference between human and cow's milk is not recorded in a table of analyses. Casein in human milk conducts itself in a different manner towards reagents from casein in cow's milk. When treated with rennet, or other digestive ferments, mother's milk coagulates in fine flakes floating in the milk; cow's milk coagulates in a solid lump, which quickly sinks. This behavior with digestive ferments unquestionably makes mother's milk more easily digested.

Should cow's milk be diluted to the extent where the protein would not be in excess of mother's milk, the milk sugar and ash would be quite too low. In measuring the value of a food the ratio of the heat forming to the muscle forming ingredients is of much significance. We may assume that the ratio as found in human milk is correct (1 to 6.8). The ratio for cow's milk (1 to 4.1) indicates that it is too narrow a ratio; that is, that there is too much of the nitrogenous or muscle forming elements as compared with the fats and other carbon compounds, or fuel elements.

The milk of the ass most closely resembles human milk in composition. Its nutritive ratio is 1 to 4.6. Goat's milk has one advantage over cow's milk, in being free from pathogenic bacteria. Cow's milk, while open to this grave objection, is also seriously defective in composition.

Various procedures are recommended for making cow's milk similar to mother's milk. Ph. Biedent recommends a mixture of five ounces sweet cream, fifteen ounces boiled water, and one-half ounce milk sugar. This mixture, which is suitable for the first period, or for sickly children, is strengthened as the digestive power of the child increases, by the addition of cow's milk, first five ounces, then nine and one-half ounces, and lastly thirteen ounces, to the first mixture. In this manner the transition is made first to somewhat diluted and finally to pure cow's milk. In all cases it is best to sterilize the cow's milk by means of a steam sterilizer. It would always be advisable to have the mixture prepared under the supervision of a physician. In all cases the composition of the cream should be known and should not exceed twenty per cent in fat content.

Dr. Winslow Anderson, in an address before the California Sanitary Convention, recommended the following procedure:

First—Boil your milk as soon as it enters the home.

Second—Skim off the skin of digestible [evidently from the text intended indigestible] serum albumen.

Third—Place the milk in earthenware vessels in a cool place and cover it so as to exclude dust and germs.

Fourth—For infant feeding: Add five to ten per cent of freshly prepared lime water and twenty-five per cent of boiled water. This reduces the casein and adds the needed lime salts and water.

Fifth—Add thirty grains of lactose or sugar of milk to each ounce, and you will have a wholesome neutral or alkaline sterilized food for infants, easily digestible, and one which does not allow the bacterium lactis present in all milk to turn it sour by fermentation, converting the milk sugar into lactic acid.

From a chemical point of view this procedure is open to grave objection. In the first place, boiling milk changes the character of the ingredients and renders it less digestible.

In the second place, the serum albumen is a normal constituent of mother's milk, in even greater proportion than in cow's milk. It is certainly digestible and valuable and should not be removed or its properties altered.

In the third place, the lime salts are more plentiful in cow's milk than mother's milk, although combined as lime phosphates. The lime water may be advantageous, but not in the manner indicated, for while the lime water will disguise acidity, it will not pre-

vent the destruction of milk sugar, as claimed, or retard curdling. It is, however, quite possible that milk prepared as directed would be greatly preferable to unboiled natural cow's milk.

Perhaps the best way to imitate mother's milk with cow's milk is to take fresh milk from a healthy dairy, where cows are kept under the best sanitary conditions; test for fat, solids, and acidity; separate the fat from the milk by means of a cream separator; remove the para casein from the skim milk by the aid of rennet; add milk, sugar and cream in the proper proportion and sterilize; bottle immediately in an aseptic atmosphere; bottles preferred which can be used as nursing bottles. Such procedure could not, of course, be done by the consumer; indeed, the apparatus to properly carry out such a process would approximate \$2,000 in value, and every detail must of needs be under the control of an analytical chemist. Such milk should have the following composition:

Fat .....	3.00
Casein .....	1.00
Albumen .....	.80
Milk sugar.....	6.00
Ash .....	.60

This product could be strengthened with sterilized cow's milk as required. It is a debatable question whether pasteurized or sterilized milk is preferable. Each method has its advantages and its defects pasteurization is at fault in leaving in the milk acid forming microbes and possibly also the bacilli producing the ptomaine causing cholera infantum.

Pasteurization never kills the spores of bacteria, which in favorable conditions quickly develop into bacteria, souring the milk and causing other fermentations. Pasteurized milk, therefore, keeps but little longer than milk not so treated.

Sterilized milk, in the ordinary use of the term, is milk raised to the boiling point and kept at that temperature for some minutes. It is not absolutely sterile or free from life. Boiling milk in open vessels drives off the gases in solution, partially decomposes and destroys the milk sugar, impairs the taste, and otherwise lessens its nutritive value. Professors Leze and Pelleren claim that a temperature of 185° F. maintained for one hour completely sterilizes the milk without impairing its nutritive value, or giving it a "cooked" taste.

#### CONDENSED MILK.

In foreign lands and to some extent in the cities of our own land condensed milk (diluted as per directions) is used as a substitute for milk in infant feeding. There are two varieties of such milk



on the market; one prepared by condensng milk in vacuo to about one-third its original volume and placing in hermetical vessels. The other variety is condensed in the same manner and from thirty-five to fifty per cent of cane sugar added. The latter kind only keeps well after opening. It should not, however, be used as infant food as long as other food is available. Condensed milk of either variety cannot be diluted to resemble the original cow's milk. Often the directions on the label advocate a dilution which leaves less than one per cent of fat in the milk. The trade name "Condensed Cream" is a misnomer, while the goods labeled "Condensed Milk" should more properly be sold as "Condensed Skim Milk."

The following analyses show composition of typical condensed milk of each variety; one from each class being made from normal milk and the other from skimmed or partially skimmed milk:

Variety.	Water.	Fat.	Protein.	Milk. Sugar.	Cane. Sugar.	Ash.
Unsweetened, whole milk, first Swiss.....	62.70	10.68	9.23	13.72		2.04
Unsweetened, partly skimmed, Loefflund.....	68.37	7.81	10.17	11.84		1.81
Sweetened whole milk, baby.....	22.99	10.61	9.91	14.21	40.17	2.08
Sweetened skim milk, calf.....	42.00	1.00	7.50	16.00	31.90	1.60

#### PREPARED FOODS.

The septic nature of cow's milk, its liability to contamination, the uncertainty of its freshness and parentage, its property of transmitting disease, its inferior keeping qualities, and, above all, its inadequacy as a complete food for infants, especially during the first period of life, has led to attempts to prepare other substitutes for mother's milk. In so far as these foods attempt to imitate nature they may be commended. Their preparation may well engage the most public-spirited of our scientific men, and complete success would award the author with the monument of untold millions of active and useful lives, in place of the marble cherubims in our cemeteries. Yet for some time to come, for reasons of convenience and economy, the cow will continue to be in the future, as in the past, the foster-mother of a large portion of the human race.

In the preparation of infants' food, it is not absolutely necessary that the ingredients be identical with cow's or human milk. Other nitrogenous bodies may be substituted for casein; other sugars, for sugar of milk; vegetable or animal fats, for milk fat. It is also probable that, to some extent, especially for older children, starch, sugar, etc., may take the place of fat. To be more definite, the nutritive ratio of a food remains unchanged by the substitution of two and one-half pounds of starch or sugar for one pound of fat.



Both sugar and fat are fed for fuel. Fat, consisting so largely of carbon, generates two and one-half times as much heat as sugar or starch, in much the same manner as a pound of hard coal will generate more heat than a pound of dry wood. Yet it must be remembered that fat is a natural constituent of milk—nature's food for young. Moreover, milk fat, from whatever animal secreted, contains a considerable portion of the glycerides of volatile and soluble acids, which are present in no other fat. It is very likely that these glycerides assist in digestion, and certainly are present for some good purpose. It is almost certain that in the feeding of infants milk fat cannot be advantageously replaced by any other carbo-hydrate, or even by any other fat.

Owing to the inability of infants during the first period of life to secrete saliva and other necessary ferments, they are unable to digest starch or farinaceous food. Until at least three months old, they are absolutely incapable of changing starch into sugar, and therefore potatoes, cereals, etc., are as indigestible as sawdust. Yet thousands of mothers imperil the lives of their children by slowly poisoning them with starch foods, under the mistaken notion that they will grow the faster. They might as well feed tacks, as the infant's suffering would then be of shorter duration. "It should be the duty of every doctor to warn mothers that no farinaceous food—and that includes bread, biscuits, gruel, arrow-root, corn flour, rice, sago, potatoes, etc.—should, under any circumstances, be given to a child until it has full dentation, unless it has been previously malted." Even after the secretion of saliva great care should be exercised in feeding starch foods to infants. Quoting again from the "Imperial Health Manual:"

Ignorant mothers who wish to provide their infants with strong nourishment in the shape of pure, or little-diluted milk, often cause the infant stomach, inflamed by the heavy diet, to partially reject the food offered to it, and sometimes severe disorders of the digestive organs are the result. Many children thrive well if they receive preserved milk along with, or in place of, fresh milk. Similarly, well-boiled and thoroughly strained broth made from oats, barley and other cereals may be given to children more than three months old as an adjunct to milk; still, it must not be forgotten that the nutritive qualities of such broths are far inferior to those of milk. Too premature attempts to nourish children on adult diet are almost certain to be punished by severe digestive disorders. The dreaded vomiting fits of infancy are frequently the result of neglect of cleanliness in storing and handling milk supplies; hence they cause more deaths among children fed on animal milk or farinaceous substances for mother's milk than among infants fed at the mother's breast. Light biscuits are usually eaten without injury by children in the last quarter of their first year, and soft-boiled eggs at the expiration of that year. Many children learn to assimilate easily-digestible meat in the course of their second year, but in general it should be given to them only toward the end of that year. Similarly, light vegetables, potatoes, and fruit are best reserved for the last-mentioned period. Subsequently, children easily

accustom themselves to a diet increasing in strength; still, food difficult to digest, or strongly spiced dishes and alcoholic liquors, should be entirely withheld from them. Pampering children with sweetmeats and other dainties is a bad habit, which not only injures their rearing, but also undermines their health by leading to teeth diseases and digestive disorders.

Herein are recorded analyses of prepared infant and invalid foods, largely made during the last two years. These goods are probably all on sale at this time, but may not all be obtainable in Minnesota. The analyses were in part made by Prof. F. T. Aschman and recorded in a special bulletin of the Pennsylvania Department of Agriculture. Others were made by Leeds, Clark, Stutzer, and the writer. A few were taken from "The Lancet" and "Foods and Sanitation," made by authority of these periodicals. While the analyst is not recorded, the character of the journals guarantees their reliability.





It will be observed that the deficiency in fat is the great defect of almost all these foods. True, many of them are recommended to be made up with milk, but even then the fat would probably be insufficient; and if not, the value of the food would be the value of the milk used, and no more. In a part of the foods analyzed starch has been converted into sugar by agency of diastase, or some other ferment. This, as stated in the introductory remarks, is quite essential. Yet many of the much-lauded foods are shown to contain large quantities of starch, while maltose or malt sugar is conspicuous for its absence. Starch may be looked for in the table under the heading of insoluble carbo-hydrates, and, where separately estimated, under its own caption.

#### INVALID FOODS.

The requirements in invalid foods are often somewhat different from those intended solely for infants. The food should not only be nutritious and easily digested, but should contain in addition some harmless stimulant. The digestibility may be favored by preconverting the starch into sugar by enzymes, also by peptonizing, etc. The most popular stimulant, efficacious and harmless, is extract of meat. This is introduced into almost every sick room in the form of beef tea. Many preparations of this character are to-day placed on sale, some of which have considerable value when used as a stimulant only. But very few, if any, may be recommended for their food value.

Before recording the analyses of these preparations it will be necessary to explain some terms used in their analysis. The only compounds of importance in meat extracts are those containing nitrogen. These, in a broad classification, may be divided into protein albuminoids and inorganic nitrogen.

The term "protein" (preëminent) is often used to characterize all forms of organic nitrogen compounds.

The nitrogenous material may be subdivided into the following classes:

- |   |   |  |
|---|---|--|
| a. Albuminose peptone   | } | Fermentation products of albumen and of highest value as food. |
| b. Pancreas peptone   |   |  |
| c. Flesh bases and decomposition products soluble in alcohol. |   |  |
| d. Ditto, insoluble in alcohol.                               |   |  |

These compounds are valueless, or almost valueless, as nourishment, but useful as stimulants.

e. Albumen; typical in the white of egg.

f. Muscular fiber.

Each of these are valuable as food, although not as easily digested as a and b.

g. Gelatin; an albuminoid of very doubtful value as food. It may retard the destruction of other valuable compounds of nitrogen, but is in itself non-nutritious. The best authorities advocate its complete removal from invalid foods.

h. Ammonium salts—inorganic salts of nitrogen, of no value as food.



## ANALYSES OF MEAT EXTRACTS.

NAME OF EXTRACT.	Water.	Ash.	Sodium Chloride (Salt).	Other Salts.	Ether Extract (Crude Fat).	Organic Matter.	NITROGEN AS								Gelatin.	Ammonia Salts.	Total Nitrogen.	Albuminoids and Proteids.
							Albumose	Peptone.	Pancreas Peptone.	Flesh Bases Sol. in Alcohol.	Flesh Bases Insol. in Alcohol.	Albumen.	Muscular Fiber.	Trace				
Liebig Extract.....	17.72	.....	3.11	19.63	.....	59.54	56	2.72	4.05	1.34	1.12	.....	.....	.....	0.4	48	9.31	.....
Kemmerich Extract.....	16.54	.....	4.15	17.96	.....	61.35	1.24	2.38	3.69	1.25	0.09	.....	.....	.....	0.05	46	9.16	.....
Bovril Fluid Beef.....	29.14	.....	14.12	3.38	.....	53.36	1.23	3.36	1.06	1.16	.31	.....	.....	.....	0.09	31	8.25	.....
Bovril Fluid Beef—Seasoned.....	44.42	.....	10.72	7.60	.....	37.26	.34	1.39	1.15	.89	.08	.....	.....	.....	0.09	27	5.12	.....
Bovril for Invalids.....	28.13	.....	4.57	11.50	.....	55.80	1.26	3.36	1.78	.82	.24	.....	.....	.....	0.15	38	8.69	.....
Bovril Bee, Jelly.....	28.15	.....	.26	1.04	.....	9.55	.16	.48	.21	.20	.....	.....	.....	.....	0.29	12	1.46	.....
Bovril Lozenges.....	9.47	.....	1.63	5.71	.....	83.19	2.06	6.06	.65	1.16	.42	.....	.....	.....	0.70	42	11.94	.....
Liebig's Extract.....	.....	.....	.....	.....	.....	.....	.96	Trace.	.....	.....	Trace	.....	.....	.....	.....	47	9.28	.....
Kemmerich's Extract.....	.....	.....	.....	.....	.....	.....	1.21	.....	5.97	.33	.08	.....	.....	.....	.....	41	9.14	.....
Kemmerich's Peptone.....	.....	.....	.....	.....	.....	.....	4.15	.....	3.97	1.36	.06	.....	.....	.....	.....	29	10.08	.....
Cidil's Meat Extract.....	.....	.....	.....	.....	.....	.....	.70	.....	1.56	.25	.....	Trace	.....	.....	.....	.00	2.77	.....
Brand's Essence of Beef.....	91.23	.84	.....	.....	.....	.....	**3.79	.....	3.96	.....	.....	.....	.....	.....	.....	.....	.....	.....
Valentine's Extract.....	55.24	11.13	.....	.....	18	.....	**2.48	.....	18.27	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mason's Extract.....	77.07	9.51	.....	.....	4.80	.....	**3.03	.....	7.47	.....	.....	.....	.....	.....	.....	.....	.....	.....
Armour's Extract.....	15.85	25.91	.....	.....	2.63	.....	**10.89	.....	43.23	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bovril for Invalids—Improved.....	17.41	15.38	.....	.....	.....	67.21	9.56	2.61	.....	.....	.....	7.00	14.87	8.50	.....	.....	.....	63.18
Beef Peptonoids—(dry).....	4.91	8.54	.....	.....	3.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.35
Bovine.....	62.18	4.30	.....	.....	Trace	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24.49
Bovox.....	52.23	2.18	.....	.....	Trace	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.91
Murdock Liquid Food.....	75.81	5.27	.....	.....	.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.02
*Liquid Peptonoids.....	64.69	.35	.....	.....	.03	19.87	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

\*Contains 15.7 alcohol. \*\*And gelatine.

It must be admitted that methods for the examination of meat extracts are yet in a very unsatisfactory condition. The chemist is not able to separate certain nutritious from non-nutritious elements. No analysis of meat extracts is worthy of great notice which does not differentiate the proteids. The following analyses by Stutzer, Leeds, Aschman, and König and Bömer are recorded for the good there is in them.

The term "phantom food" is not inappropriate when applied to most of these preparations. A few have not even the meager qualifications of a good and harmless stimulant. The last recorded contains a large quantity of alcohol, and should never be allowed in the sick room without the sanction of a physician.

Those preparations in which one-half or more of the total nitrogen is available as food could be classed as nutritious. The peptones, albumen, and muscular fiber are the only forms of nitrogen to be included in determining food value. In only one preparation do the albumen and muscular fiber constitute any large part of the total nitrogen. While there is much room for improvement as regards palatability, digestibility, and nutritive value, the best of these preparations are certainly of the greatest usefulness in the nourishment of invalids. Others are practically valueless.

The function of medicine is largely to remove cause of illness and place nature in a position to rebuild the shattered system. Nature must be assisted with proper food. During sickness only the most palatable, nutritious, and digestible foods are acceptable to the weakened organism. The patient places his hope of recovery in the recommendations of the manufacturers. Physicians may, by experiment, weed out the useless preparations, but always at the risk of sacrifice of human life. The analyses herein recorded are given with a knowledge of these imperfections, but still with the hope that they may be useful as a guide in selecting nourishment for the invalid.

SUMMARY OF HONEY ANALYZED FROM FEB. 15, 1895, TO JUNE 10, 1896.

No.	Producer.	Seller.	City or Town.	Description.	Direct Polari- zation	Indirect Polari- zation.	Sucrose.	Reducing Sugars.	Dextrine.	How Adulterated.
2063		H. T. Thoralsen	Minneapolis	Honey	.....	.....	.....	.....	.....	.....
2064	American Pickling Co.	Suddeth & Ressuth	Minneapolis	Honey	.....	.....	.....	.....	.....	.....
2069		Zehay & Ruder	Minneapolis	Honey	.....	.....	.....	.....	.....	None.
2100		Mary Smith	Minneapolis	Honey	.....	.....	.....	.....	.....	None.
2107		M. M. Sommers	Minneapolis	Honey	.....	.....	.....	.....	.....	None.
2241		J. Cunningham	Minneapolis	White Clover	.....	.....	.....	.....	.....	None.
2242		Fred Surry	Minneapolis	California, pure	.....	.....	.....	.....	.....	None.
2281		O. Sozenfall	Minneapolis	Pure honey	.....	.....	.....	.....	.....	None.
2300	J. B. Whips	Munn Bros.	Minneapolis	Pure honey	.....	.....	.....	.....	.....	None.
2438	W. J. Stana	K. Aslesen	Minneapolis	Pure honey	.....	.....	.....	.....	.....	None.
2439		H. A. Shoe	Minneapolis	California, pure	.....	.....	.....	.....	.....	None.
2440		J. B. Johnson	Minneapolis	California, pure	.....	.....	.....	.....	.....	.....
2441	Mrs. McLaughlin	Torrence & Stellmacher	Minneapolis	California, pure	.....	.....	.....	.....	.....	.....
261	W. M. Russell	G. H. Nefstad	Minneapolis	California, pure	.....	.....	.....	.....	.....	.....
2651	Armott & Corbett	P. H. Pasha	Minneapolis	California, strained	.....	.....	.....	.....	.....	.....
1	Minneapolis Pickling Co	J. S. King	Minneapolis	Pure honey	-10.4	.....	.....	.....	.....	None.
25	L. D. Leonard	C. S. Brackett	Minneapolis	Pure honey	.....	.....	.....	.....	.....	None.
275	Sprague & Warner	J. Everest	Dodge Center	Pure honey	112.3	.....	.....	.....	.....	None.
298	M. Collins	F. G. Wheeler	Rochester	.....	112.0	.....	.....	.....	.....	Glucose.
303	Dean Bros.	H. K. White	Winona	Spanish Needle	101.7	.....	.....	.....	.....	Glucose.
16	Farmer	W. Fritz	Duluth	Honey	.....	99.2	1.88	58.82	.....	Glucose.
1		Owens & Pritchard	Duluth	Strained honey	6.3	16.6	7.76	67.56	.....	Glucose.
2		M. A. Sherk & Son	Lake Crystal	California, strained	-20.9	59.8	2.78	.....	.....	Cane sugar.
3	Chas. Kleinschmidt	R. Westhoff	Mankato	Pure honey	63.0	55.8	3.04	.....	.....	Glucose & honey.
3	Reid, Murdoch & Co.	Fred Eichhorn	Mankato	Strained honey	61.3	59.4	1.44	64.10	Yes.	Glucose & honey.
1		Sands Bros.	Kenyon	Pure honey	88.8	86.2	1.96	.....	.....	Glucose.
1		C. H. Bortland	Kenyon	Pure honey	-11.5	.....	.....	.....	.....	.....
2	H. Volstad	J. G. Osmond	Kenyon	Pure honey	-25.0	.....	.....	.....	.....	.....
3	P. H. Volstad	Hillman Bros.	Minneapolis	Honey	-16.3	.....	.....	.....	.....	.....
1	Grout & Waters	E. P. Stacey	Minneapolis	Strained honey	125.0	-23.0	3.77	45.45	Yes.	Glucose.
307	J. P. Ivy	C. H. Oppe & Son	Minneapolis	Honey	-18.0	.....	.....	.....	.....	.....
85	J. P. Simons	Michael Bros.	Duluth	Honey	-10.5	-13.8	2.50	78.12	.....	.....
1	C. H. Pond	Verxa Bros.	Duluth	Honey	-10.6	.....	.....	.....	.....	.....
2	Verxa Bros.	Verxa Bros.	St. Paul	Honey	17.1	12.4	3.54	69.44	Yes.	Mixture.
3	Verxa Bros.	Verxa Bros.	St. Paul	Honey	17.1	12.8	3.24	69.44	Yes.	Mixture.
1	M. V. Foley	F. W. Graham	Preston	Pure honey	-12.7	.....	.....	.....	.....	.....
101	Krous & Co.	Bornmans & Co.	Duluth	Honey	-5.3	-13.4	6.10	75.75	.....	.....
45	G. H. Pond	Gannon Grocery Co.	Duluth	Honey	-9.0	.....	.....	.....	.....	Glucose.
134		M. O. Kemp	Minneapolis	Pure honey	-10.5	.....	.....	.....	.....	.....

141	S. B. & T. J. Burton.	Alden	Strained honey.	109.1	.....	50.00	Yes.	Glucose.
164	Sinclair & Brom.	Fairmont	Strained honey.	111.6	.....	51.54	Yes.	Glucose.
186	G. R. Best.	Pipestone	Strained honey.	-11.3	.....	.....	.....	.....
190	Miller & Osbeck.	Minneapolis	Honey.	64.7	.....	.....	.....	Glucose.
43	R. Erdman.	Minneapolis	Honey.	105.1	.....	50.00	Yes.	Glucose.
60	G. H. Pond.	Minneapolis	Honey.	-13.7	.....	.....	.....	.....
61	E. N. Phillips.	Minneapolis	Honey.	-12.7	.....	.....	.....	.....
62	H. Jos.	Minneapolis	Honey.	-14.4	.....	.....	.....	.....
63	F. Moeser.	Minneapolis	Honey.	-14.4	.....	.....	.....	.....
64	W. E. Olson Co.	Minneapolis	California honey.	.....	17.0	13.87	67.56	Honey and cane sugar.
66	American Packing Co.	Minneapolis	Honey.	.....	.....	.....	.....	.....
67	E. N. Phillips.	Minneapolis	Honey.	.....	.....	.....	.....	.....
184	Sprague, Warner & Co.	Calumet	Honey.	-14.1	.....	.....	.....	.....
104	Willmar Creamery Co.	Minneapolis	Arizona strained	-15.7	.....	.....	.....	.....
105	Willmar Creamery Co.	Minneapolis	Strained honey.	-14.1	.....	.....	.....	.....
1	Yerxa Bros.	St. Paul	Comb honey.	10.5	.....	.....	.....	.....
2	Yerxa Bros.	St. Paul	Comb honey.	1.5	.....	11.52	.....	.....
3	Yerxa Bros.	St. Paul	Strained honey.	13.8	.....	16.8	.....	.....
72	Minneapolis Provision Co.	Minneapolis	Honey.	.....	.....	10.8	2.26	Mixture honey and sugar.
77	J. M. Dodgson.	Minneapolis	Honey.	-20.0	.....	.....	.....	.....
81	J. E. Phillips.	Minneapolis	Honey.	.....	.....	.....	.....	.....
85	F. R. Johnson.	Minneapolis	Honey.	.....	.....	.....	.....	.....
87	R. E. Nickel.	Minneapolis	Honey.	-15.8	.....	.....	.....	.....
94	J. P. Gedney.	Minneapolis	Honey.	-8.2	.....	.....	.....	.....
104	T. O. Gratte.	Minneapolis	Honey.	-26.0	.....	.....	.....	.....
106	Fred Lorenz.	Minneapolis	Honey.	-14.4	.....	.....	.....	.....



## CLASS MEMORANDUM OF VINEGAR.

Standard cider vinegar.....	96
Cider vinegar, low in acid or solids.....	135
Standard low wine vinegar.....	61
Low wine vinegar, low in acid.....	94
Vinegar misrepresented or artificially colored.....	160
Malt vinegar, standard.....	6
Miscellaneous vinegar .....	5

## STANDARD CIDER VINEGAR.

City or Town.	Manufacturer.	Acid.	Solids.
Fairmont .....	Rochester, N.Y., Vinegar W.	4.58	3.45
Fairmont .....	Mott.....	4.50	3.21
Fulda .....	F. C. Johnson.....	4.68	2.40
Mabel .....	F. C. Johnson.....	5.20	3.05
Mabel .....	Barrett.....	4.84	3.29
Minneapolis .....	M. A. Gedney Pickling Co..	5.04	2.78
West Duluth .....	Red Cross Vinegar Co.....	4.54	2.54
Duluth .....	Mott.....	4.72	2.70
Duluth .....	Wells-Stone Mer. Co.....	4.72	3.37
Fond du Lac .....	Mott.....	4.58	3.75
Fond du Lac .....	Mott.....	4.64	3.45
East Duluth .....	Starn Ordean Co.....	4.74	2.89
Carlton .....	M. A. Gedney.....	4.86	3.10
Stillwater.....	M. A. Gedney.....	4.78	3.94
St. Paul.....	Barrett & Barrett.....	4.40	.....
Faribault .....	Wm. H. Burge & Co.....	4.80	.....
Moorhead .....	Gedney .....	4.50	.....
Moorhead.....	Red Cross.....	4.66	.....
Brownsdale .....	Unknown.....	5.20	.....
St. Paul .....	Barrett & Barrett.....	5.10	.....
St. Paul .....	Barrett & Barrett.....	5.08	.....
Minneapolis .....	S. R. & J. C. Mott.....	4.50	.....
Minneapolis .....	F. C. Johnson.....	6.30	.....
Minneapolis .....	M. A. Gedney Pickling Co..	4.62	.....
*St. Paul .....	Unknown .....	5.58	.....
St. Paul .....	F. N. Spink & Co.....	4.64	.....
Minneapolis .....	F. N. Spink & Co.....	5.60	4.59
Minneapolis .....	M. A. Gedney Pickling Co..	4.58	3.78
Taylor's Falls .....	Amazon Vinegar Co.....	4.56	.....
Faribault .....	J. Cushing & Son.....	4.96	.....
Faribault .....	Red Cross Vinegar Co.....	4.50	.....
Bayard .....	Unknown.....	5.00	.....
Bayard .....	Unknown.....	4.72	.....
St. Paul .....	Unknown.....	4.54	.....
Winona .....	Mott.....	4.56	.....
St. Peter.....	Gedney.....	4.52	2.37
Lake Crystal.....	Unknown.....	4.66	2.48
Lake Crystal.....	Mott.....	4.50	2.59
Mankato.....	Mott.....	5.12	3.78
Mankato.....	Unknown.....	5.60	4.69
Mankato.....	Mott.....	4.58	2.86
Mankato.....	Minneapolis.....	4.50	5.50
Mankato.....	Fiber, Jordan & Co.....	4.73	4.45
Mankato.....	J. A. Pressley.....	5.32	4.64
Mankato.....	Mott.....	4.70	4.69
Mankato.....	Patterson.....	4.70	3.83
Sleepy Eye.....	Clarksville, Mo.....	4.50	3.83
Cannon Falls.....	Mott.....	4.56	3.13
Cannon Falls.....	A. Kelley.....	5.00	3.53
Cannon Falls.....	Gedney.....	4.84	2.86
Cannon Falls.....	Amazon.....	4.70	2.07
Mankato.....	Mott.....	4.80	4.88
Mankato.....	Mott.....	4.84	2.91
New Ulm.....	Arnold.....	4.57	2.99
Austin.....	Unknown.....	4.50	2.40
Austin.....	Freeport, Ill., Vinegar Wks.	4.70	2.86

\*Brought in.

## STANDARD CIDER VINEGAR.—Continued.

City or Town.	Manufacturer.	Acid.	Solids.
Dexter.....	Freeport, Ill., Vinegar Wks.	4.68	2.75
Spring Valley.....	Mott.....	4.50	3.80
Spring Valley.....	Gedney.....	5.68	2.51
Duluth.....	Prussing Cider Co.....	4.70	3.02
Duluth.....	The Heinz Co.....	4.52	2.18
Kenyon.....	Spink.....	4.78	3.45
Kenyon.....	Sampson's.....	4.50	2.59
Kenyon.....	Spink.....	4.68	3.21
West Concord.....	Duffy.....	4.52	2.67
Lanesboro.....	Interstate Packing Co.....	4.74	3.61
Lanesboro.....	La Crosse Vinegar Works...	4.62	2.97
Lanesboro.....	Reid Murdock.....	4.66	3.97
Lanesboro.....	Freeport Vinegar Works...	4.52	2.94
Rushford.....	Amazon Vinegar Works...	4.88	3.97
Rushford.....	Gedney.....	4.96	3.07
Rushford.....	Amazon Vinegar Works...	5.22	4.94
Houston.....	Mott.....	4.66	3.67
Houston.....	Gedney.....	4.70	2.94
Houston.....	Myers (Freeport, Ill.).....	4.90	3.29
Houston.....	Myers (Freeport, Ill.).....	4.52	3.24
La Crescent.....	American Vinegar Works...	5.36	4.07
La Crescent.....	Mott.....	4.72	3.48
Duluth.....	Alden Vinegar Co.....	4.66	3.32
Minneapolis.....	M. A. Gedney Pickling Co...	5.48	4.64
Minneapolis.....	Duffy, Montfort & Greene...	5.04	2.91
Minneapolis.....	Gedney Pickling Co.....	5.16	3.05
Janesville.....	Duffy, N. Y.....	6.06	2.97
Duluth.....	F. H. Spink & Co.....	5.06	3.48
Duluth.....	M. A. Gedney.....	4.72	3.24
Duluth.....	Mott.....	4.50	3.92
Brownsdale.....	Unknown.....	5.06	.....
Caledonia.....	Dubuque Vinegar Works...	5.30	3.47
Caledonia.....	Dubuque Vinegar Works...	4.60	3.02
Reno.....	La Crosse Vinegar Works...	4.64	3.37
Wabasha.....	Dubuque Vinegar Works...	4.90	5.48
Lake City.....	F. C. Johnson.....	5.72	3.07
Lake City.....	F. C. Johnson.....	4.64	3.70
Alden.....	Mott.....	4.50	3.88
Winnebago City.....	Amazon Vinegar Works...	5.00	3.78
Fairmont.....	American Vinegar Works...	5.04	3.86

## CIDER VINEGAR—LOW IN ACID OR SOLIDS

Seller.	City or Town.	Manufacturer.	Acid.		Solids.
			Acid.	Solids.	
H. W. Kingsbury.....	Winona.....	Unknown.....	4.18	.....	
Reiter & Kaiser.....	Faribault.....	Unknown.....	4.26	.....	
Knoll & Co.....	St. Peter.....	Duffy's.....	4.01	.....	
Davis & Lundem.....	St. Peter.....	Johnson.....	4.30	.....	1.83
Z. P. Hedberg.....	St. Peter.....	Mott.....	4.26	.....	2.67
Z. P. Hedberg.....	St. Peter.....	New Ulm.....	4.20	.....	
Wm. Kenkel.....	St. Peter.....	Prussing Cider Co.....	4.56	.....	1.78
Owen & Pritchard.....	Lake Crystal.....	Griggs, Cooper & Co.....	4.46	.....	2.55
Iberg, Roberts & Jenkins.....	Lake Crystal.....	F. C. Johnson.....	4.68	.....	1.35
Young & Munson.....	Mankato.....	L. Patterson & Co.....	4.06	.....	3.37
M. A. Sherk & Co.....	Mankato.....	L. Patterson & Co.....	4.18	.....	3.48
M. Hanna.....	Mankato.....	L. Patterson & Co.....	4.20	.....	3.26
A. H. Beebe.....	Mankato.....	Duffy.....	4.24	.....	3.13
Clements & Son.....	Mankato.....	Johnson.....	5.60	.....	1.91
Clements & Son.....	Mankato.....	Gedney.....	4.46	.....	2.70
Buelow & Gehike.....	Mankato.....	Johnson.....	4.30	.....	2.07
O. Schmidt.....	Sleepy Eye.....	New Ulm.....	3.76	.....	3.83
Falck Bros.....	Cannon Falls.....	Wilson & Farrington.....	4.44	.....	2.86
Holmes Bros.....	Cannon Falls.....	Frederick & Kemp.....	3.72	.....	2.64
J. B. Meyer.....	Mankato.....	Patterson.....	4.34	.....	3.56
Fred Eichow.....	Mankato.....	Unknown.....	4.40	.....	3.10
Fred Kron.....	Mankato.....	New Ulm.....	3.82	.....	3.83
F. B. Hofer.....	New Ulm.....	Grinnell & Collins.....	4.40	.....	3.40
Pfeffert & Co.....	New Ulm.....	New Ulm V. & P. Co.....	4.08	.....	3.07
Geo. Groff.....	New Ulm.....	New Ulm.....	3.60	.....	2.13
T. J. Anderson.....	Duluth.....	F. C. Johnson.....	4.40	.....	1.86
Henry Faley.....	Duluth.....	Mott.....	4.44	.....	3.78
C. I. & E. A. Loucks.....	Austin.....	Am. Vin. Works.....	4.88	.....	1.51
G. A. Veblen.....	Blooming Prairie.....	Marshalltown V. W.....	4.06	.....	1.75
Alliance Cash Store.....	Blooming Prairie.....	Amazon V. Co.....	4.44	.....	4.61
A. L. Sleeper & Son.....	Brownsdale.....	Milwaukee V. Co.....	4.38	.....	2.91
B. F. Bacon.....	Brownsdale.....	Durant & Casper Co.....	4.44	.....	2.99
E. Torgun & Son.....	Grand Meadow.....	Am. Vinegar Co.....	4.10	.....	1.72
C. W. Allard.....	Spring Valley.....	John Gold.....	4.48	.....	3.78
Thos. Trevillian.....	Duluth.....	M. A. Gedney.....	4.18	.....	3.29
Hall & Swendsen.....	Duluth.....	Mott.....	3.96	.....	3.67
Noan & Lynch.....	Duluth.....	M. A. Gedney.....	4.26	.....	3.00
Sands Bros.....	Kenyon.....	Spink.....	4.24	.....	4.72
C. H. Borlang.....	Kenyon.....	Rochester, N. Y.....	4.36	.....	2.91
P. L. Berg.....	Kenyon.....	Spink.....	4.18	.....	2.35
Wing & Baker.....	Nerstrand.....	Unknown.....	4.16	.....	3.45
J. G. Osmund.....	Nerstrand.....	Dunham & Eastman.....	4.32	.....	1.98
H. N. Hegnes.....	Nerstrand.....	Duffy.....	4.46	.....	2.91
H. L. Blass.....	West Concord.....	Unknown.....	4.16	.....	2.86
Elledge & Straight.....	West Concord.....	Spink.....	3.94	.....	2.75
Shields & Binggold.....	West Concord.....	Spink.....	4.22	.....	2.67
Shields Bros.....	West Concord.....	Spink.....	4.10	.....	3.00
C. J. Nelson.....	Lanesboro.....	Amazon V. W.....	4.26	.....	3.94
H. Smith.....	Rushford.....	Sprague & Warner.....	3.82	.....	2.05
A. M. Hanson.....	Rushford.....	La Crosse V. Works.....	3.96	.....	3.86
Aostadt & Johnson.....	Houston.....	Mott.....	4.42	.....	3.42
Alfred Lysen.....	Duluth.....	Wells, Stone & Co.....	4.38	.....	2.99
H. Knores.....	Duluth.....	Wells, Stone & Co.....	4.24	.....	3.34
Koling & Russell.....	Duluth.....	Wells, Stone & Co.....	4.42	.....	4.37
L. P. Palato.....	Duluth.....	F. H. Spink & Co.....	4.06	.....	2.89
H. C. Burns.....	Duluth.....	Mott.....	4.48	.....	3.45
Gaylord & Co.....	Duluth.....	Heinz.....	4.48	.....	2.26
J. Wilkey.....	Duluth.....	Wells-Stone Mer Co.....	4.38	.....	2.99
J. A. Sutton.....	Duluth.....	Heinz & Co.....	4.28	.....	2.94
Fellows & Metcalf.....	Minneapolis.....	Gedney P. Co.....	4.48	.....	3.37
W. H. Sexton.....	Minneapolis.....	Red Cross V. Co.....	4.24	.....	3.53
L. Will.....	Minneapolis.....	F. C. Johnson.....	4.36	.....	1.75
S. Peterson.....	Janesville.....	McVeigh, Chicago.....	4.38	.....	2.86
Armstrong & Kenger.....	Janesville.....	Sprague, Warner & Co.....	3.98	.....	3.18
F. T. Kingsley.....	New Richland.....	Barrett & Barrett.....	4.40	.....	4.53
H. K. Stearns.....	New Richland.....	Burlington V. Wks.....	4.38	.....	2.40
Johnson & Mot.....	Duluth.....	F. H. Spink.....	4.32	.....	2.45
R. T. Falkestes.....	South Duluth.....	Mott.....	4.40	.....	3.97
Thos. Trivillian.....	South Duluth.....	Hiawatha.....	4.36	.....	3.53



## CIDAR VINEGAR—LOW IN ACID OR SOLIDS.—Continued.

Seller,	City or Town.	Manufacturer.	Acid.	Solids.
M. B. Omeara.....	Duluth.....	Mott.....	4.46	3.78
S. C. Miller.....	Duluth.....	Touhy Mer Co.....	3.84	3.61
J. C. Arnott.....	Duluth.....	Burlington V. & P. W.....	4.34	2.99
E. J. Bouska.....	Duluth.....	F. H. Spink.....	3.96	2.97
Wm. Ward.....	West Duluth.....	Bechtner.....	4.34	3.43
Masher & Knettel.....	West Duluth.....	Heinz & Co.....	4.40	2.32
Bradley & Parsons.....	West Duluth.....	M. A. Gedney.....	4.10	2.45
W. H. Lawrence.....	Brownsdale.....	Unknown.....	3.84	
C. R. Varco.....	Rose Creek.....	Unknown.....	4.46	3.67
C. R. Varco.....	Rose Creek.....	Unknown.....	4.48	3.64
Gedney.....	St. Paul.....	Gedney.....	4.42	2.70
N. B. Smith.....	Minneapolis.....	Gedney Pickling Co.....	4.36	2.89
H. M. Pryts.....	Minneapolis.....	Anthony Kelly.....	4.08	2.53
Koling & Russell.....	Duluth.....	Barrett & Barrett.....	4.18	4.13
J. P. Somman.....	Caledonia.....	Unknown.....	4.04	2.02
J. Myers.....	Wabasha.....	Amazon Vinegar W.....	4.30	5.02
V. Shebat.....	Wabasha.....	Amazon Vinegar W.....	4.28	5.13
R. Harnish.....	Lake City.....	F. C. Johnson.....	4.12	1.56
Colby Bros.....	Lake City.....	Red Cross.....	4.24	2.26
S. B. & T. J. Burton.....	Alden.....	Unknown.....	4.16	2.10
F. P. Barnes & Son.....	Blue Earth City.....	New Ulm Vinegar W.....	3.76	3.75
Banings Bros.....	Blue Earth City.....	P. H. Kelly.....	4.04	3.51
J. D. Edwards.....	Winnebago City.....	Duffy.....	4.30	2.94
L. D. Ward.....	Fairmont.....	Duffy.....	4.34	3.26
A. D. Tanner.....	Fairmont.....	Home-Made.....	2.36	2.83
B. C. Pingree.....	Sherburne.....	F. C. Johnson.....	5.20	.97
A. E. Olson.....	Jackson.....	Mott.....	4.48	1.78
I. J. Severson.....	Pipestone.....	Barrett & Barrett.....	4.30	3.61
J. S. McManus.....	Edgerton.....	Mott.....	3.74	9.61
Bacon & Strand.....	Mabel.....	Mott.....	4.20	3.16
Gardner Bros.....	Preston.....	Freeport Vinegar W.....	4.08	3.53
K. M. Bergen & Co.....	Preston.....	J. T. Hancock & Son.....	4.16	3.10
Thos. Scott.....	Minneapolis.....	American P. Co.....	3.90	3.02
H. J. Dunn.....	Minneapolis.....	Genesee Fruit Co.....	4.44	2.97
Myrick & Tilson.....	Duluth.....	M. A. Gedney P. Co.....	4.18	2.94
W. P. Rabey.....	West Duluth.....	Red Cross V. Co.....	4.04	1.08
Kate Secord.....	Duluth.....	Highland V. & P. W.....	4.44	4.45
Hill & Ferguson.....	Duluth.....	Mott.....	4.32	3.70
E. L. Phillips.....	East Duluth.....	Wells-Stone Mer. Co.....	4.46	3.24
Cloquet Lumber Co.....	Cloquet.....	Wells-Stone Mer. Co.....	4.32	3.00
James Dennihy.....	Carleton.....	Duffy V. Works.....	4.42	3.10
M. T. Willander.....	Carleton.....	Touhy Mer. Co.....	4.42	4.05
Marion Bros.....	Tower.....	Barrett & Barrett.....	4.06	2.02
J. Gaudsey.....	Hibbing.....	Bechtner.....	4.44	3.10
James Hanson.....	Stillwater.....	F. C. Johnson.....	2.48	
Yerxa Bros.....	St. Paul.....	Yerxa Bros.....	4.38	
Messick & Macauley.....	Duluth.....	S. R. & J. C. Mott.....	3.34	
Reiter & Kaiser.....	Faribault.....	Red Cross V. Co.....	4.12	
W. P. Raley.....	West Duluth.....	Unknown.....	4.40	
L. Warner.....	St. Paul.....	Unknown.....	2.40	
S. V. Wyckoff.....	Worthington.....	Alden Vinegar Co.....	3.80	
H. C. Edder & Co.....	Blue Earth City.....	Unknown.....	4.30	
H. W. Lawrence.....	Brownsdale.....	Unknown.....	3.40	
H. W. Lawrence.....	Brownsdale.....	Unknown.....	1.90	
W. Potter & Co.....	Atk'n.....	Red Cross.....	4.30	
C. C. Griswold.....	St. Paul.....	Unknown.....	2.10	
Chas. H. Hooper.....	Minneapolis.....	Red Cross.....	3.64	
Yerxa Bros. & Co.....	Minneapolis.....	F. H. Spink & Co.....	4.30	
Yerxa Bros. & Co.....	St. Paul.....	J. C. Keef.....	4.06	
M. Reilly.....	St. Paul.....	N. W. Vinegar Works.....	4.28	
S. Bergquist.....	Minneapolis.....	Geo. R. Newell & Co.....	4.34	
G. S. Comer.....	Taylor's Falls.....	M. A. Gedney Co.....	4.20	
W. Shuman.....	Red Wing.....	Henry & Co.....	4.00	
F. Nutting & Co.....	Faribault.....	Theopold Mer. Co.....	3.92	
Hard & Kuethe.....	Preston.....	Unknown.....	4.16	
Latsch & Son.....	Winona.....	Michigan Cidar Co.....	4.24	



## STANDARD LOW WINE VINEGAR.

City or Town.	Manufacturer.	Acid.
Minneapolis	M. A. Gedney P. Co.	4.96
Minneapolis	J. P. Gedney	4.70
Minneapolis	F. H. Spink & Co.	5.58
Faribault	J. Cushing & Son	5.28
Faribault	Red Cross Vinegar Co.	7.48
St. Peter	New Ulm	5.04
St. Peter	New Ulm	4.56
Lake Crystal	Griggs, Cooper & Co.	4.50
Lake Crystal	Griggs, Cooper & Co.	4.50
Mankato	Patterson & Co.	4.80
Mankato	Patterson & Co.	7.76
Mankato	Patterson & Co.	4.94
Sleepy Eye	New Ulm	5.06
Cannon Falls	Fredrick & Kemp	5.12
Cannon Falls	Heinz	5.30
Cannon Falls	Amazon	4.50
Mankato	Patterson	5.26
Mankato	Dubuque	5.52
Mankato	Cushing, Dubuque	5.16
New Ulm	New Ulm	5.12
Austin	Unknown	5.02
Dexter	La Crosse Vinegar Works	4.60
Spring Valley	Unknown	5.44
Duluth	Chicago	4.62
Duluth	Burlington V. & P. Co.	4.96
Kenyon	St. Paul	4.72
Kenyon	Spink	4.50
Lanesboro	Amazon Vinegar Works	5.32
Lanesboro	Amazon Vinegar Works	5.64
Houston	Prussing Vinegar Works	4.64
Houston	La Crosse Vinegar Works	4.78
La Crescent	American Vinegar Works	4.82
Duluth	Wells-Stone Mer. Co.	4.84
Duluth	Bechtner's	4.84
Minneapolis	Winston, Farrington & Co.	4.72
Minneapolis	Geo. R. Newell & Co.	5.10
Minneapolis	H. J. Heinz Co.	5.66
Duluth	H. J. Heinz Co.	4.64
South Duluth	W. H. Bangs & Co.	4.64
Duluth	W. H. Bangs & Co.	4.64
Duluth	Wells-Stone Mer. Co.	4.60
West Duluth	Heinz & Co.	5.10
Spring Grove	Unknown	4.92
Spring Grove	Amazon Vinegar Works	5.58
Spring Grove	Dubuque Vinegar Works	4.94
Spring Grove	Amazon Vinegar Works	4.96
Pipestone	Geo. R. Newell	4.68
Duluth	Stone-Ordean Co.	4.72
Duluth	Stone-Ordean Co.	4.80
West Duluth	F. H. Spink	4.86
East Duluth	M. A. Gedney	4.60
East Duluth	W. H. Bangs	5.88
Cloquet	M. A. Gedney	4.58
Ely		7.68
Hibbing	Bechtner	7.56
New Ulm	New Ulm Vinegar Works	5.62
New Ulm	New Ulm Vinegar Works	5.56
New Ulm	New Ulm Vinegar Works	4.74
New Ulm	New Ulm Vinegar Works	4.70
New Ulm	New Ulm Vinegar Works	4.52
Moorhead	M. A. Gedney & Co.	4.50
Minneota	M. A. Gedney & Co.	5.08

## LOW WINE VINEGAR—LOW IN ACID.

Seller.	City or Town.	Manufacturer.	Acid.
Schumacker Bros.	St. Peter	Gedney	4.38
Mary Thomas	St. Peter	P. H. Kelly M. Co.	4.30
Wm. Kinkel	St. Peter	New Ulm	3.86
Young & Munson	Mankato	New Ulm	4.33
J. S. Cooper & Co.	Mankato	Geo. R. Newell & Co.	3.94
Wm. Siebert	Mankato	Red Cross	3.98
A. J. Bush & Son	Mankato	Patterson	4.30
Falck Bros.	Cannon Falls	Heinz	4.40
Holmes Bros.	Cannon Falls	Gedney	3.40
J. B. Meyer	Mankato	Patterson	3.88
R. Westhoff	Mankato	Iowa Vinegar Works	4.40
Mrs. Erch	Mankato	Heinz	4.06
Ang. Malchon	Mankato	Patterson	3.98
Fred Kron	Mankato	New Ulm	3.46
F. B. Hofer	New Ulm	New Ulm	3.96
G. F. Dongus	New Ulm	Crone Bros.	3.88
C. W. A. Krook	New Ulm	New Ulm	4.04
B. Behnke & Co.	New Ulm	New Ulm	4.24
W. Hummel	New Ulm	New Ulm	3.88
Pfeffert & Co.	New Ulm	New Ulm	4.02
Geo. Groff	New Ulm	New Ulm	4.26
F. W. Benke	New Ulm	New Ulm	4.10
Krone Bros.	New Ulm	New Ulm	4.28
J. F. Newman	New Ulm	New Ulm	4.00
Ruemke & Huebelman	New Ulm	New Ulm	3.84
Wm. Amme	New Ulm	New Ulm	3.98
Wm. Durbohn	New Ulm	New Ulm	4.00
M. Juenemsen	New Ulm	New Ulm	4.14
Chas. Fiedler	New Ulm	New Ulm	3.86
F. Peacker	New Ulm	New Ulm	3.84
Geo. Jacobs	New Ulm	New Ulm	4.10
W. H. Lawrence	Brownsdale	Unknown	3.96
J. C. Holback	Spring Valley	Latch & Son	4.14
J. M. Serenson	Duluth	Unknown	4.16
Hall & Swendson	Duluth	Gedney	4.30
C. L. Bruslaten & Co.	Kenyon	Winston, Minneapolis	4.44
Lund & Akre	Kenyon	Spink	4.22
J. G. Osmund	Nerstrand	Gedney	4.32
G. W. Young	Minneapolis	N. W. Vinegar Works	4.28
J. Sangman	Lanesboro	Unknown	4.00
A. Kaneumy	Duluth	Red Cross V. Co.	3.96
B. Hogan	Duluth	Wells-Stone Mer Co.	4.08
Gaylord & Co.	Duluth	M. A. Gedney	4.20
C. H. Oppl & Sons	Duluth	Roth Mnfgr Co.	4.22
D. Martino & Co.	Duluth	F. H. Spink & Co.	4.06
Owen & Pritchard	Lake Crystal	Griggs, Cooper & Co.	4.46
J. A. Pressley	Mankato	Red Cross V. Co.	4.02
M. Hanna	Mankato	Patterson & Co.	4.00
Simon Clark Grocery Co.	Duluth	Bechtner	4.48
B. B. Hart & Son	Minneapolis	M. A. Gedney P. Co.	4.10
Erick Steendahl & Co.	Minneapolis	American P. Co.	4.44
M. Levy	Minneapolis	Spink & Co.	3.62
Moritz Hoeschen	Freeport		3.42
F. H. Quade	Janesville	New Ulm Vinegar Wks.	4.20
Hill & Anderson	Duluth	Stone-Ordeau Co.	3.96
Isaacson & Kauppi	Duluth	Wells-Stone Mer Co.	3.76
Mrs. Martino	West Duluth	F. H. Spink	4.08
C. R. Marco	Rose Creek	Unknown	4.34
N. B. Smith	Minneapolis	Geo. R. Newell & Co.	3.92
R. Erdman	Minneapolis	M. A. Gedney P. Co.	4.44
A. Halverson	Spring Grove	Amazon V. Works	4.44
M. Flanger	Spring Grove	Red Cross V. Works	4.38
B. C. Fick	Lake City	Red Cross V. Works	3.80
Oren Bros.	Wells	American V. Works	4.28
Berge Bros.	Jackson	La Crosse Vinegar Wks.	4.42
Miller & Osbeck	Pipestone	Jewett Bros.	4.30
C. H. Helweg	Fulda	Wm. M. Hoyt	3.72
W. P. Raley	West Duluth	Stone-Ordeau Co.	4.42
Kate Secord	Duluth	Wells-Stone Mer. Co.	4.20
Bockman & Peterson	West Duluth	Bechtner	3.44

LOW WINE VINEGAR—LOW IN ACID.—*Continued.*

Seller.	City or Town.	Manufacturer.	Acid.
Brand & Donald.....	New Duluth.....	Wells-Stone Mer. Co.....	4.28
Iron Range Cash Store.....	Tower .....	Heinz & Co.....	4.38
Chas. Fiedler.....	New Ulm.....	New Ulm V. Works.....	4.28
F. Backer.....	New Ulm.....	New Ulm V. Works.....	4.10
W. Amme.....	New Ulm.....	New Ulm V. Works.....	4.16
C. H. Opple & Sons.....	Duluth .....	.....	4.30
J. M. Schaffer.....	Stillwater .....	Northwestern V. Works.....	4.00
P. M. Anderson.....	Lamberton .....	M. A. Gedney & Co.....	3.99
H. C. Eder.....	Blue Earth City.....	Unknown .....	3.92
H. C. Eder.....	Blue Earth City.....	Unknown .....	4.20
H. C. Eder.....	Blue Earth City.....	Unknown .....	4.10
H. C. Eder.....	Blue Earth City.....	Unknown .....	4.10
Koenig Bros.....	Plainview .....	Unknown .....	4.06
P. B. Nelson.....	Minneapolis .....	Dunham & Eastman.....	4.36
*P. M. Anderson.....	Lamberton .....	Winston, Far'gton & Co.....	4.26
M. Reilly.....	St. Paul.....	N. W. Vinegar Works.....	4.04
C. Schmidt & Sons.....	St. Paul.....	F. H. Spink.....	4.42
J. Carlson.....	Minneapolis .....	M. A. Gedney P. Co.....	4.26
Dahlquist & Johnson.....	Minneapolis .....	Unknown .....	3.60
*Latsch & Son.....	Winona .....	W. H. Bunge Co.....	4.36
Young & Munson.....	Mankato .....	Unknown .....	4.28
F. Nutting & Co.....	Faribault .....	Red Cross.....	3.62
Healy Bros.....	Faribault .....	Amazon Vinegar & P. Co.....	4.16
Latsch & Son.....	Winona .....	Bunge .....	4.40

\*Brought in.

## VINEGAR MISREPRESENTED OR ARTIFICIALLY COLORED.

Seller.	City or Town.	Manufacturer.	Represented as or Brand.	Acid.	Solids.	Proved to be
Edwards & Roberts.	Lake Crystal.	C. E. Meyers.	Red Cross.	4.64	3.34	Cider and grain.
Young & Munson.	Mankato	Mott	Mott's pure apple.	4.63	.91	
F. C. McCadden.	Mankato	Mankato	Red Cross.	4.86	3.26	Not cider vinegar.
Geo. Hallman.	Mankato	Fatterson	Red Cross.	5.00	.29	Water added.
Wm. Siebert.	Mankato	New Ulm.	Red Cross.	3.90	.29	
Jensen & Durbohn.	Sleepy Eye.	Red Cross.	Pure cider vinegar.	4.48	4.18	Sugar added.
Johansen & Co.	Sleepy Eye.	Dubuque	Red Cross.	5.40	.35	
Mrs. Erch.	Mankato	Amazon	Sugar beet.	4.74	2.18	Not cider vinegar.
Aug. Malchon.	Mankato	W. M. Barrett.	Niagara Co.	5.30	2.21	Beet or sugar.
Thos. Knutson.	New Ulm.	Alden Vinegar Co.	Alden Red A. V.	4.90	4.23	Not pure cider.
Knos & Meden.	Duluth	Heinz & Co.	Pure cider vinegar.	3.80	.43	Colored low wine.
Svech & Risatti.	Duluth	M. A. Gedney Pickling Co.	Gedney red wine.	4.43	2.91	Grain.
F. P. McBride.	Austin	Unknown	Pure cider vinegar.	3.82	1.16	Colored.
E. A. Dalger.	Dexter	Alden	Pure cider vinegar.	4.80	1.21	Colored.
B. L. Berner.	Grand Meadow	American Vinegar Works.	Pure cider vinegar.	4.58	2.85	Not pure cider.
G. J. Correll.	Spring Valley	Heinz	Pure cider vinegar.	3.50	.54	
Jollens & Watson.	Duluth	Spink & Co.	Pure cider vinegar.	4.84	3.56	Malt extract, etc.
Nick Christopher.	Duluth	Prentan Vinegar Co.	Red Cross.	4.28	.63	Colored low wine.
O. C. Reitan.	Duluth	Heinz & Co.	Pure cider vinegar.	4.58	.....	
A. W. Eller.	Duluth	Prentan Vinegar Co.	Pure cider vinegar.	4.04	.....	
Ellipsen & Son & Co.	East Duluth	Heinz & Co.	Pure cider vinegar.	4.32	3.26	Grain and cider, solids.
P. W. Carpenter.	East Duluth	Roth Manufacturing Co.	Pure apple, 45 grains.	4.43	4.51	Not cider vinegar.
P. H. Johnson.	East Duluth	Mott	Cider vinegar.	5.10	.16	Not cider vinegar.
H. H. Orcutt.	West Concord.	Amazon Vinegar Works.	Pure cider vinegar.	4.58	3.82	Grain solids.
M. Scanland.	Lanesboro	Sprague & Warner.	Sugar beet vinegar.	4.78	1.89	Sugar vinegar.
I. Tagland.	Rushford	Unknown	Sugar beet vinegar.	4.06	1.40	Sugar vinegar, colored.
Field & Briggs.	Houston	Unknown	Cider vinegar.	4.42	1.99	Sugar vinegar, colored.
R. T. Thompson.	La Crescent.	Red Cross.	Pure cider vinegar.	2.73	2.33	Cider syrup.
A. Kanecumy.	Duluth	F. H. Spink & Co.	Pure cider vinegar.	4.12	2.83	Sugar vinegar, colored.
L. Masued.	Duluth	West Ind. Spice V. Co.	W. Ind. Spice V. Co.	4.90	.43	Low wine v. colored.
B. Hagen.	Duluth	Alden Vinegar Co.	Gold Medal.	3.88	.81	Low wine v. colored.
Gaylord & Co.	Duluth	Red Cross Vinegar Co.	Pure cider vinegar.	3.90	.64	Low wine v. colored.
C. H. Opble & Sons.	Duluth	M. A. Gedney Vinegar Co.	Pure cider vinegar.	4.26	.....	Low wine v. colored.
C. H. Opble & Sons.	Duluth	Red Cross Vinegar Co.	Pure cider vinegar.	4.60	.29	Low wine v. colored.
Simon-Clark Grocery Co.	West Duluth.	Roth Manufacturing Co.	Pure cider vinegar.	4.92	.....	Low wine v. colored.
M. M. Gasser.	Duluth	Beckner's Pickling Co.	Beckner Pickling Co.	4.18	.16	Low wine v. colored.
				4.38	.43	Low wine v. colored.



## VINEGAR MISREPRESENTED OR ARTIFICIALLY COLORED.—Continued.

Seller.	City or Town.	Manufacturer.	Represented as or Brand.	Acid.	Solids.	Proved to be
Eric Steindahl & Co.	Minneapolis	Alden Vinegar Co.	Cider vinegar.	3.38	72	Low wine v. colored.
R. M. Chapman.	Minneapolis	Anthony Kelly & Co.	Alpine cider vinegar.	3.82	76	Not pure cider.
C. W. Payne.	Minneapolis	Michigan C. Co.	Genuine apple vinegar.	4.46	3.75	Not pure cider.
C. J. Chamberlain.	Janessville	patterson	Pure cider vinegar.	4.00	3.10	Not pure cider.
Finley Bros.	Janessville	Amazon V. and P. Works.	Sugar beet vinegar.	3.84	3.70	Low wine v. colored.
Hagen & Bride.	New Richland.	Amazon Bros.	Pure cider vinegar.	4.52	3.70	Not cider vinegar.
P. O. Sunde.	New Richland.	Alden Vinegar Co.	Pure cider vinegar.	3.32	21	Low wine v. colored.
S. Kistatie.	Duluth	Touhy Mer. Co.	None	3.82	21	Low wine v. colored.
Borman's Cash Grocery.	Duluth	H. J. Heinz & Co.	Pure cider vinegar.	5.12	3.40	Malt vinegar.
Henry Foley.	Duluth	H. J. Heinz & Co.	Pure cider vinegar.	4.38	2.94	Malt extract.
G. Peterson & Co.	Duluth	H. J. Heinz & Co.	Pure cider vinegar.	5.30	3.43	Malt vinegar.
Gus. Bergquist.	Duluth	Red Cross Vinegar Co.	Pure cider vinegar.	4.76	43	Low wine v. colored.
O. A. Berg.	Duluth	Red Cross Vinegar Co.	Pure cider.	5.14	3.21	Not cider vinegar.
D. Casutt.	Duluth	Bechtner	Pure cider vinegar.	4.52	40	Low wine v. colored.
Olson & Kihlman.	Duluth	Bechtner	Pure cider.	4.10	21	Low wine v. colored.
Eström & Dahlson.	Duluth	Bechtner	Pure cider.	3.60	11	Low wine v. colored.
Nicholas Christoffer.	Duluth	Barrett & Barrett.	Pure cider.	4.04	13	Low wine v. colored.
Tueo. Christaferson.	Duluth	Barrett & Barrett.	Pure cider.	4.41	19	Low wine v. colored.
T. H. Landsverk.	West Duluth	Red Cross Vinegar Co.	Pure cider vinegar.	4.60	43	Low wine v. colored.
Helt & Olmer.	West Duluth	Wells-Stone Mer Co.	Pure cider vinegar.	4.98	19	Low wine v. colored.
Isaacson & Kauppl.	Duluth	Wells-Stone Mer Co.	Pure cider vinegar.	4.54	448	Not cider vinegar.
J. E. Foubister.	Duluth	E. H. Spink.	Pure cider vinegar.	4.68	3.48	Not pure cider v.
H. O. Barlow.	West Duluth.	H. O. Barlow.	Pure cider vinegar.	4.10	4.21	Not pure cider v.
C. R. Varco.	Rose Creek.	Unknown	Cider vinegar.	4.54	3.13	Not pure cider v.
H. M. Pryts.	Minneapolis	Alden Vinegar Co.	Cider vinegar.	3.38	31	Low wine v. colored.
Newhouse & Doley.	Spring Grove.	Amazon Vinegar Works.	Beet vinegar.	4.20	2.21	Colored.
John Poldz.	Caledonia	Davenport Vinegar Works.	Grape vinegar.	6.40	1.67	Older & l. w., watered.
J. B. Finckl.	Wabasha	Cushing & Son.	Cider vinegar.	5.14	1.57	Older & l. w., watered.
C. C. Clement.	Lake City	Red Cross Vinegar Works.	Cider vinegar.	4.46	.02	Low wine, colored.
C. C. Clement.	Lake City	Red Cross Vinegar Works.	Cider vinegar.	4.38	.51	Low wine, colored.
Taylor Bros.	Wells	Alden Vinegar Works.	Pure cider vinegar.	3.40	2.24	Low wine or sugar c.
M. N. Leland.	Wells	Unknown	Pure cider vinegar.	4.36	.56	Low wine v. c. and flav.
Morgan Bros. & Woodworth.	Blue Earth City.	Alden Vinegar Works.	Pure cider vinegar.	3.22	.....	Low wine, colored.
J. Scott.	Blue Earth City.	Red Cross Vinegar Works.	Pure cider vinegar.	4.68	.....	Low wine, colored.
O. E. Howe.	Winnabago City.	Red Cross Vinegar Works.	Pure cider vinegar.	4.38	.....	Low wine, colored.
G. H. Gates.	Winnabago City.	Red Cross Vinegar Works.	Pure cider vinegar.	4.74	.....	Low wine, colored.
J. C. Baffies.	Winnabago City.	Cushing & Son.	Pure cider vinegar.	4.50	.....	Low wine, colored.
Diment & Brosemer.	Fairmont	Mason City Vinegar Works.	Pure cider vinegar.	4.66	43	Low v. c. and flav'd.
Follett Bros.	Sherburne	Alden Vinegar Works.	Pure cider vinegar.	3.46	89	Low v. c. and flav'd.
Wells & Morris.	Sherburne	Alden Vinegar Works.	Pure cider vinegar.	4.26	3.88	Not cider vinegar.

Ole E. Olson	Jackson	Red Cross Vinegar Works.	Pure cider vinegar.	4.38	.03 Low wine v. colored.
D. Wellner.	Jackson	Wellner & Hoffman.	Pure cider vinegar.	5.02	Low wine v. colored.
J. W. Hunter.	Jackson	Mason City Grocery Co.	Pure cider vinegar.	4.66	.39 Low w. v. c. and flav.
J. D. Barrington.	Jackson	Duffy	Pure cider vinegar.	4.94	.83 Low wine v. colored.
F. S. Glenside.	Jackson	Marshalltown Vinegar Wks.	Pure cider vinegar.	4.54	.97 Low wine v. colored.
P. Hanson.	Jackson	Mason City Grocery.	Pure cider vinegar.	4.66	Low w. v. c. and flav.
G. R. Best.	Pipestone	Cushing & Son.	Pure cider vinegar.	4.36	.03 Low wine v. colored.
C. S. Smith & Co.	Pipestone	Red Cross Vinegar Works.	Pure cider vinegar.	4.34	.02 Low wine v. colored.
M. W. Ware.	Pipestone	Cushing & Son.	Pure cider vinegar.	4.86	.86 Low w. v. c. and flav.
O. S. Howell.	Edgerton	Cushing & Son.	Malt vinegar.	6.20	Low wine v. colored.
C. H. Helweg.	Fulda	Wm. M. Hoyt.	White elder vinegar.	4.30	.54 Low wine v. colored.
F. L. Chrisman.	Fulda	Ransom Bros.	Pure elder vinegar.	4.62	.34 Not pure elder v.
F. Field Bros.	Mabel	La Crosse Vinegar Works.	Amber vinegar.	5.02	.67 Sugar wine v. colored.
Conkey Bros.	Preston	Amazon	Sugar beet.	4.62	.81 Sugar vinegar colored.
R. Gribben.	Preston	John Hancock.	Amber	5.16	.62 Low wine v. colored.
A. Kirst.	Preston	Helms & Co.	Pure elder vinegar.	4.48	.37 Malt extract and gr.
Green, Berbrick & Co.	West Duluth.	Red Cross.	Pure elder vinegar.	3.40	.88 Low wine v. colored.
F. W. Erickson.	Duluth	Burlington V. and P. Co.	Pure elder vinegar.	3.40	1.32 Low wine v. colored.
Brand & Donald.	New Duluth.	Unknown	Pure elder vinegar.	3.54	1.13 Low wine v. colored.
W. H. McNeil.	New Duluth.	Unknown	Pure elder vinegar.	3.54	1.02 Low wine v. colored.
Louis Holstrom.	Cloquet	Barrett & Barrett.	Pure elder vinegar.	4.08	.51 Low wine v. colored.
W. J. Watt.	Carlton.	Red Cross Vinegar Co.	Pure elder vinegar.	3.76	.62 Low w. v. c. and flav.
Virginia Cash Grocery	Virginia City	Wells-Stone Mer. Co.	Pure elder vinegar.	3.86	.63 Low wine v. colored.
M. H. Martin.	Virginia City	Wells-Stone Mer. Co.	Pure elder vinegar.	4.38	.65 Low wine v. colored.
Virginia Mer. Co.	Virginia City	Oakland Vinegar Co.	Hiawatha p. cider v.	4.32	.05 Low wine v. colored.
D. M. Mooser.	Virginia City	Stone-Ordene Co.	Pure elder vinegar.	5.14	.05 Low wine v. colored.
D. C. Christopher.	Virginia City	Barrett & Barrett.	Pure elder vinegar.	4.36	.03 Low wine v. colored.
W. B. Pratt & Co.	Virginia City	M. A. Gedney.	Pure elder vinegar.	4.58	.21 Low wine v. colored.
R. E. Miller.	Ely	Barrett & Barrett.	Pure elder vinegar.	4.70	.46 Low wine v. colored.
Anderson & Korb.	Ely	Barrett & Barrett.	Pure elder vinegar.	5.92	.03 Low wine v. colored.
J. C. Sandi & Co.	Tower	Barrett & Barrett.	Hiawatha p. cider v.	4.60	.51 Low wine v. colored.
J. D. Murphy.	Tower	Wells-Stone Mer. Co.	Pure elder vinegar.	4.54	.05 Low wine v. colored.
Fors & Berg.	Tower	Wells-Stone Mer. Co.	Cider vinegar.	5.06	.38 Malt vinegar.
Itasca Mer. Co.	Hibbing	Mott	Pure elder vinegar.	3.96	.67 Low wine v. colored.
Laut & McNoughton.	Mountain Iron.	Wells-Stone Mer. Co.	Pure elder vinegar.	6.40	.38 Low wine v. colored.
G. H. Oppe & Sons.	Duluth	Red Cross Vinegar Co.	Pure elder vinegar.	4.44	.91 Not pure elder.
F. H. Sigerst.	Duluth	Roth Vinegar Co.	Pure elder vinegar.	4.60	.15 Low wine v. colored.
Souch & Misatti Co.	Duluth	Red Cross.	Pure elder vinegar.	4.48	.17 Low wine v. colored.
Wm. P. Raley.	West Duluth.	Unknown	Pure elder vinegar.	4.28	3.85 Not pure elder v.
Horne Bros.	Duluth	Unknown	Pure elder vinegar.	4.50	Low wine, colored.
Peterson Bros.	Duluth	Peterson Bros.	Pure elder vinegar.	4.06	Low wine, colored.
B. Fischer.	Moorehead	Unknown	Cider vinegar.	3.38	Low wine, colored.
C. F. Stone & Co.	Moorehead	Unknown	Cider vinegar.	4.50	Low wine, colored.
W. Potter & Co.	Atkin	Unknown	Cider vinegar.	4.04	Low wine, colored.
Red Cross Vinegar Co.	Willow River.	Red Cross Vinegar Co.	Oneida Co. cider vin.	4.58	Low wine, colored.
Red Cross Vinegar Co.	Willow River.	Red Cross Vinegar Co.	Oneida Co. cider vin.	2.34	Low wine, colored.
Sorensen & Crohn.	St. Paul.	Alden Vinegar Co.	American malt vin.	2.30	Low wine, colored.
J. I. Salberg.	Minneapolis	Alden Vinegar Co.	West India spice vin.	4.06	Low wine, colored.
*Ransom Bros.	Minneapolis	Unknown	West India spice vin.	3.92	Low wine, colored.
*H. L. Hyermstadt.	Red Wing.	Unknown	West India spice vin.	1.84	Low wine, colored.
				4.90	Unwholesome.

## VINEGAR MISREPRESENTED OR ARTIFICIALLY COLORED.—Continued.

Seller.	City or Town.	Manufacturer.	Represented as or Brand.	Aids.	Solids.	Proved to be
*H. C. Kohn.....	Red Wing.....	Unknown.....	Extra claret wine vin.	3.46	.....	.....
*H. C. Kohn.....	Red Wing.....	Unknown.....	Genilton 1 year old.	3.08	.....	Low wine, colored.
*Arnold & Corbett.....	Minneapolis.....	J. C. Kees.....	Pure elder vinegar.....	4.64	.....	Low wine, colored.
*P. M. Anderson.....	Lamberton.....	Alden & Co.....	Fruit wine, 45 grains.	3.26	.....	Low wine, colored.
*P. M. Anderson.....	Lamberton.....	Alden & Co.....	Red A. 45 grains.	3.20	.....	Low wine, colored.
People's Tea and Coffee Co.	St. Paul.....	N. W. Vinegar Co.....	Cider vinegar.....	3.76	.....	Low wine, colored.
People's Tea and Coffee Co.	St. Paul.....	Alden Vinegar Co.....	West India spice vin.	2.74	.....	Low wine, colored.
W. B. Hawley.....	St. Paul.....	Alden Vinegar Co.....	Pure elder vinegar.....	3.40	.....	Low wine, colored.
W. B. Hawley.....	St. Paul.....	Alden Vinegar Co.....	West India spice vin.	4.36	.....	Low wine, colored.
A. Matz & Co.....	St. Paul.....	Red Cross.....	Pure elder vinegar.....	3.22	.....	Low wine, colored.
*Clark's Grove Mer. Co.....	Clark's Grove.....	Chas. E. Meyers & Co.....	West India spice vin.	5.32	.....	Low wine, colored.
*Chas. Kieren.....	Duluth.....	Unknown.....	(Double strength)	4.68	.....	Low wine, colored.
*F. M. Nash.....	Mankato.....	Alden & Co.....	Vinegar.....	4.20	1.39	Low wine, colored.
I. R. Card.....	Minneapolis.....	Alden Vinegar Co.....	Extra Red A.....	3.34	1.05	Low wine, colored.
I. R. Card.....	Minneapolis.....	Alden Vinegar Co.....	Extra Siberian crab.....	3.70	1.08	Low wine, colored.
I. R. Card.....	Minneapolis.....	Alden Vinegar Co.....	E. M. B., No. 469.....	4.34	1.08	Low wine, colored.
Person & Ehrenberg.....	Minneapolis.....	Alden Vinegar Co.....	Natural grape.....	3.38	1.43	Low wine, colored.
Frederick & Kemp Co.....	Minneapolis.....	Alden Vinegar Co.....	American malt vin.....	3.12	1.56	Low wine, colored.
Frederick & Kemp Co.....	Red Wing.....	Alden Vinegar Co.....	Extra C. P. Genilton v.	3.82	.....	Low wine colored.
Young & Monson.....	Red Wing.....	Alden Vinegar Co.....	Malt vinegar.....	4.36	.....	Low wine colored.
C. Peaslee.....	Mankato.....	Unknown.....	Pure apple vinegar.....	4.34	.....	Low wine colored.
J. J. Gits & Co.....	Taylor's Falls.....	Red Cross Vinegar Co.....	West India spiced.....	3.86	.....	Low wine colored.
Eric Stendahl & Co.....	Faribault.....	Alden Vinegar Co.....	.....	3.23	.....	Low wine colored.
D. F. Owens.....	Minneapolis.....	Alden Vinegar Co.....	50 gr. grape wine v.....	3.26	.....	Low wine colored.
Henry Dibble.....	Florence.....	Alden Vinegar Co.....	Pure elder vinegar.....	3.50	.....	Low wine colored.
Henry Mactzold.....	Grenada.....	Alden Vinegar Co.....	Grape juice.....	3.44	.....	Low wine colored.
Henry Mactzold.....	Red Wing.....	Alden Vinegar Co.....	West India spiced.....	3.24	43	Low wine, colored.
Henry Mactzold.....	Red Wing.....	Alden Vinegar Co.....	Genilton.....	3.42	49	Low wine, colored.
Henry Mactzold.....	Red Wing.....	Alden Vinegar Co.....	Claret.....	3.42	.....	Low wine, colored.

\*Brought in.

†Flavored.

## MALT VINEGAR—STANDARD.

City or Town.	Manufacturer.	Acid.	Solids.	
Duluth .....	J. H. Henge .....	5.60	3.69	
East Duluth .....	H. J. Heinz & Co. ....	5.56	3.53	
Duluth .....	H. J. Heinz & Co. ....	5.96	3.86	
Duluth .....	H. J. Heinz & Co. ....	5.62	2.18	
West Duluth .....	Heinz & Co. ....	5.24	3.34	
Minneapolis .....	Heinz & Co. ....	5.76	.....	Bought for cider v.

## MISCELLANEOUS VINEGAR.

City or Town.	Manufacturer.	Acid.	Solids.	
Preston .....	M. V. Facey .....	4.84	11.74	Honey vinegar.
Freeport .....	C. E. Meyers & Co. ....	4.24	.....	Crab apple cider v.
Lake City .....	R. Hanisch .....	4.14	.....	Grain v. not distilled.
St. Paul .....	Alden Vinegar Co. ....	2.66	.....	Beet or sugar, colored.
Faribault .....	Amazon V. and P. Co	4.08	.....	Sugar beet v., colored.



## PART IV.

## Report of E. B. Williams, State Cheese Inspector.

FROM AUG. 1, 1894, TO AUG. 1, 1896.

Hon. Berndt Anderson, Dairy and Food Commissioner,

Sir: Since my last report submitted to you, there has been a marked improvement in the production of cheese in our state. Perhaps the increase in the number of factories has not been as large as was generally anticipated, which, taken from every standpoint, is not altogether an unfavorable sign. Nevertheless, those who have stayed by their business, and have diligently and intelligently worked with a view to turning out a superior quality of cheese and a betterment of their condition, have made no mistake, neither have they been in the least disappointed.

The seasons of 1895 and 1896, generally speaking, were excellent seasons for the dairy. The moisture was sufficient to make good pasture and to produce an abundance of succulent forage for stock, with, perhaps, a few exceptions in some localities. So favorable have been the conditions with reference to the growth of food for stock and the demand for a good quality of cheese, that the manufacturer has every reason to feel encouraged and to steadily increase his output.

While these favorable conditions have tended greatly to stimulate the cheese industry, there are other potent factors at work, and to which I desire to call attention. Owing to the fact that throughout the West, in the dairying regions, rains have been abundant, at no time have the pastures, during the past two seasons, been what could not be called good. This has resulted in increasing the butter product, which, coupled with another fact, that exports have greatly fallen off, has left a large surplus on

the domestic markets and a consequent lowering of butter until it has reached a point the lowest in thirty-five years. Consequently, the large supply and the somewhat congested condition of the butter market of our great cities, like Chicago, New York, Philadelphia, and Boston, have opened up to the cheese maker an opportunity, of which he quickly availed himself, and the result has been that the milk of the producer is now being converted largely into cheese. By diligent inquiry of the manufacturers and at the markets, we find that cheese is the more profitable of the two dairy products at this writing, and has been during the past season.

If, as above stated, there has not been the increase in the number of factories, there is evidence on every hand of a greatly superior product being made. And those who are devoting their energies and their capital to the production of cheese, feel greatly encouraged and are convinced of the fact that we will ultimately lead our sister states in the output, as well as in the quality, of this rapidly increasing popular article of pure food.

#### BUTTER AND CHEESE AT LOW PRICES.

The amount of butter made from the milk of a cow yielding 3,500 pounds per year will be about 130 pounds. At the present average market price, the butter would amount to about eighteen dollars, which would not pay for her keep. Should the same amount of milk be converted into cheese, it would make 350 pounds, and, at the present market price, would give the producer \$31.50, or barely sufficient to pay the maintenance of the cow. If, however, the same cow should yield 5,000 pounds of milk and the fat average 3.50 per cent, the amount of butter produced would be 210 pounds, and, at the present market price, bring \$29.40, or just sufficient for her keep. Should this amount of milk be made into cheese, it would yield 500 pounds, and, at the present market prices of that article, would bring to the producer forty-five dollars, or a profit of fifteen dollars to the dairyman.

Therefore, in order to give a fair profit, and to choose between the manufacture of butter or cheese at the present prices and this average production of milk, the preference would seem to be on the side of cheese.

#### STANDARD OF CHEESE.

More firmly am I convinced, as I pass over the territory, visiting the different factories and making tests with the Babcock tester, that our state standard for cheese is altogether too low. Several reasons may be advanced for thus basing my conclusions.

In the first place, the standard for milk is 3.50 per cent of fat. Our cheese is 40 per cent of fat to total solids. On these data the milk can easily be reduced to 2.50 in fat and still meet the requirements of the law. But the question at once suggests itself, Would it not be a partially skim cheese?

Second—It has been fully demonstrated, and is now a well-known fact among cheese makers, that milk containing as high as six or seven per cent of fat may be safely worked into cheese without the loss of any of the fat.

Third—Hundreds of chemical tests in our laboratory have proven conclusively that Minnesota full cream cheese, as found in the markets, will average over 50 per cent of fats to total solids; and when milk is used which contains 3.50 per cent of fat, the fats to solids in the cheese is nearer 55 per cent.

Therefore, to have our cheese on a safe basis, and to be consistent with our law for the standard of milk, the standard of cheese should not be less than 50 per cent of fat to total solids.

#### THE NATIONAL FILLED CHEESE LAW.

The benefits accruing from the filled cheese law were in evidence soon after the bill became a law and before it went into effect. On good authority, we learn that the business of making filled cheese in some of the states is practically killed. In sections where tons of the fraud compound were manufactured a year ago, none is being made at this time. The occupation of many bogus cheese makers is gone, and they must now seek pastures new and a calling more honorable. It must not be inferred that no filled cheese is being made, because there are factories still remaining, and these few can well afford to meet the requirements of the law, and, in the meantime, make a very handsome profit in the business. The law, however, has been the means of restricting the output, and a most beneficial effect, no doubt, will result. Especially will this be the case in dairy states where their laws have not been sufficient to protect the honest product of the cow.

Minnesota and a few of our sister states have in this respect been more fortunate, in that our laws regulating the manufacture and sale of fraud dairy foods are of an inhibitory character. Therefore we have comparative immunity from "filled" cheese, oleo-margarine, and other fraud foods.

## BABCOCK MILK TEST.

It is quite essential to call attention to the Babcock test, which is now in continuous use in a large number of the cheese factories in the state. A careful study of the appended table will disclose the fact that the milk now furnished by the patrons of the cheese factories is of excellent quality. The average is 3.70 per cent of fat, or two-tenths of one per cent above standard. This excellent showing may be attributed to the Babcock test. Were it not for this valuable machine there would, undoubtedly, be a deficit many times. Not only would it affect the maker, but the patron as well. Their interests are mutual, and in accordance with the custom of the time, the patron does not receive his pay according to volume, but the quality is the basis of the milk value.

By this method, also, the producer of the milk may be kept posted at all times as to the individual value of each cow in his herd. Should there be one cow that fails to meet the requirements, that animal may at once be selected out and disposed of to the butcher.

## CONDITION OF FACTORIES.

In my travels through the state and in the work of inspection, it is gratifying to report the satisfactory condition in which most of the cheese factories are found. Occasionally there will be one where the want of sanitary work shows itself, and other items which, more or less, involve the business and preclude success. But these are the "exception" and not the rule.

In several cases the Babcock test has revealed the fact that a very inferior quality of milk was being supplied to the factories. The parties in each case were complained of, and when brought before the proper authority they pleaded guilty and paid their fines. It has had a wholesome effect, and will be the means of a general observance of the law with reference to pure milk.

## CHEESE FACTORIES AND CREAMERIES COMBINED.

In the state there are a number of factories which are operated in conjunction with creameries; that is, there is a combination of the cheese factory and the creamery. Part of the season is devoted to the manufacture of butter and the remaining months to cheese. Owing to varying conditions, butter or cheese is made as the management deems most profitable. The months of May and June are usually the time when creameries are operated to



their fullest capacity. As the product is generally very large, the markets become stocked to overflowing. Naturally, there is a decline in prices and the creamery man turns his attention to cheese making. Two or three months may thus be given to cheese, or until a reaction sets in and the management again resumes the making of butter.

An arrangement of this kind is, in many respects, very satisfactory, and is of special advantage to those who invest their capital in the manufacture of dairy products. The benefits which accrue are manifold and are largely to be measured from an economical standpoint. It may chance to be a district where dairying is new and the business is in its infancy. Such being the case, the number of cows may not be sufficient to support both a cheese factory and a creamery. Lacking in these essentials, it would be financial suicide to erect and equip both a factory and a creamery, when one building, with an additional expense of a few hundred dollars, will meet the requirements and save an outlay of, perhaps, \$1,500 or \$2,000.

#### QUALITY IN CHEESE.

A superior quality of cheese is always in demand, and usually at good prices. Those who wish to excel in the manufacture of good dairy products have little idea of the vast amount of unsalable goods which one finds in the market. The market value of cheese is considerably enhanced if the cheese is of uniform size; not too large, neatly bandaged, clean and smooth.

The careful cheese maker will continually be on his guard, as it is an exceedingly easy matter to ruin what might have turned out a nice lot of cheese. There are various ways for the accomplishment of their ruin. In the first place, by the use of an insufficient amount of rennet. Second, by high cooking or by the setting of milk at a high temperature. Thus a hard, indigestible, unsalable cheese is produced. If the milk is a little cool, more rennet should be used. The more rennet used in all cases, the more moisture is retained; and the more moisture, with proper temperature, the softer the cheese, and, consequently, the better the opportunity for the development of a rich, nutty flavor, other things being equal, and a decidedly popular cheese.

With a few well-grounded principles, and keeping in view the fact that conditions in cheese making may greatly vary, due allowance should be made for every varying condition, and you will have produced a popular cheese for which you will receive the highest price the market affords.

The late Dr. Augustus Voelcker, an eminent authority on dairy products, in referring to cheddar cheese, gave some valuable information when he said: "The rich appearance of old cheeses is by no means attributable to a very large proportion of butter (meaning fat in milk), nor is the poor condition of a new or badly made cheese referable solely to a deficiency of butter (fat)."

After a further discussion of the qualities of cheese, of which he had made a large number of analyses, he explains the changes which often occur in the process of the ripening of a first class cheese: "The peculiar mellow appearance of good cheese, though due to some extent to the butter (fat) which it contains, depends in a higher degree upon a gradual transformation which the casein curd undergoes in ripening. The curd is hard and insoluble in water, but by degrees it becomes softer and more soluble; or, speaking more correctly, gives rise to products of decomposition, which are soluble in water. Now, if this ripening process is improperly conducted, or the original character of the curd is such that it adapts itself but slowly to this transformation, the cheese when sold will be, comparatively speaking, tough and appear less rich in butter than it really is; while in a well made and properly kept cheese this series of changes will be rapidly and thoroughly effected. Proper ripening thus imparts to cheese a rich appearance, and unites with the butter in giving it that most desirable property of melting in the mouth."

#### RIPENING OF CHEESE.

Prof. H. H. Dean, of the Ontario Agricultural Department, notes that: "The change of indigestible curd into digestible, palatable cheese is yet a mystery." Says Professor Dean: "We do not know that cheese loses in weight during the ripening or curing." The average loss of water is reported by him as being 26.58 per cent of the total moisture in the green cheese, and the loss of solids 4.82 per cent. He reports "no loss of fat in five months but a loss of 6.15 per cent of the total casein."

The New York Station bulletin observes that: "In every case the amount of soluble nitrogen compounds increased very much in five months. The cheese when green contained no nitrogen in the form of ammonium compounds, while at five months there were 2.92 per cent of the total nitrogen in the cheese in this form." This station further observed that "the cheese in the manufacture of which the largest amount of rennet was used, other

things being equal, contained considerable more of the soluble nitrogen compound than did any other cheese at the end of five months."

Professor Dean further says: "The soluble nitrogen compounds are those which are partially digested or rendered more easy of digestion." And this accords with general experience that rennet does have a digesting or ripening effect on cheese, and that the larger the quantity of rennet used, other things being equal, the more quickly will the cheese cure and ripen.

Respectfully submitted,

E. B. WILLIAMS.

## CHEESE FACTORIES INSPECTED DURING 1895-1896.

No. of Factory.	Name of Factory.	Location.	Principal Market.	Address of Manager.	Average Test.
121	Merton.....	Merton.....	Minneapolis.....	Frank Carlton.....	3.80
26	Medford.....	Medford.....	St. Paul.....	Geo. D. Corey.....	3.77
165	West Concord.....	W. Concord.....	Local.....	W. G. Avery.....	3.34
5	Berne.....	Berne.....	St. Paul.....	Crescent Creamery Co.....	3.37
161	Ellington.....	W. Concord.....	Local.....	P. J. Norton.....	3.45
164	Myrtle.....	Myrtle.....	Twin Cities.....	W. W. Galt.....	3.31
46	Oakland.....	Oakland.....	Austin.....	J. B. Kesshie.....	3.57
20	Turtle Creek.....	Austin.....	Local.....	G. Kearns.....	3.35
181	Le Sueur.....	Le Sueur C.....	Local.....	J. C. Krenik.....	3.75
95	New Trier.....	New Trier.....	Twin Cities.....	N. P. Gross.....	3.72
96	Hampton.....	Hampton.....	St. Paul.....	John Delfelt.....	3.60
.....	Dennison.....	Dennison.....	Minneapolis.....	G. D. Gillett.....	3.58
26	Medford.....	Medford.....	Twin Cities.....	Crescent Creamery Co.....	3.80
1	Fergus Falls.....	Fergus Falls.....	Twin Cities.....	W. L. Chappel.....	3.73
29	Western.....	Western.....	Local.....	T. B. Roberts.....	.....
168	Verndale.....	Verndale.....	Local.....	W. W. Pike.....	3.83
1	Fergus Falls.....	Fergus Falls.....	Twin Cities.....	W. L. Chappel.....	3.80
157	Hancock.....	Hancock.....	Minneapolis.....	W. J. Casper.....	3.72
195	Appleton.....	Appleton.....	Local.....	M. Horn.....	3.55
163	Hancock.....	Hancock.....	Local.....	Wm. Steward.....	3.50
180	Garden City.....	Garden City.....	Local.....	J. M. Chapman.....	3.63
4	Pine Island.....	Pine Island.....	Local.....	A. Casper.....	.....
112	North Redwood.....	N. Redwood.....	Local.....	Chas. Fletcher.....	4.00
170	Sleepy Eye.....	Sleepy Eye.....	Local.....	Swenson & G.....	4.00
179	Springfield.....	Springfield.....	Twin Cities.....	A. J. Fischer.....	4.00
196	Good Thunder.....	Good Thunder.....	Local.....	Shore & Hinkle.....	3.60
181	Le Sueur.....	Le Sueur C.....	Local.....	J. C. Krenik.....	3.70
16	New Market.....	New Market.....	Local.....	Reintges & R.....	3.65
110	Stanton.....	Stanton.....	Twin Cities.....	A. Ramage.....	3.71
110	Stanton.....	Stanton.....	Twin Cities.....	Crescent Creamery Co.....	3.71
174	Vasa.....	Vasa.....	Local.....	L. Endberg.....	3.50
24	Becker.....	Becker.....	Local.....	A. Johnson.....	.....
18	Rock Dell.....	Rock Dell.....	Rochester.....	M. Wing.....	3.55
189	Pine Island.....	Pine Island.....	Minneapolis.....	Parkings Bros.....	3.54
178	Alden.....	Alden.....	Local.....	C. W. Coleman.....	3.70
120	Acoma.....	Acoma.....	Twin Cities.....	C. G. McEwen.....	3.65
191	Minn. Lake.....	Minn. Lake.....	Local.....	B. F. Wendt.....	4.00
141	Cedar Mills.....	Cedar Mills.....	Minneapolis.....	F. Johnson.....	.....
118	Sumpter.....	Sumpter.....	Minneapolis.....	O. E. Benner.....	3.81
166	Eden Valley.....	Eden Valley.....	Local.....	C. Smith & Co.....	3.80
166	Eden Valley.....	Eden Valley.....	Local.....	C. Smith & Co.....	3.80
123	Willmar.....	Willmar.....	Minneapolis.....	M. C. Tollifson.....	4.68
175	Maine Prairie.....	Maine Prairie.....	Minneapolis.....	R. W. Stanley.....	3.91
20	Austin.....	Austin.....	Minneapolis.....	E. G. Tompkins.....	3.73
149	Minn. Lake.....	Minn. Lake.....	Twin Cities.....	P. F. Wendt.....	3.68
187	Austin.....	Austin.....	Local.....	G. Kearns.....	3.70
125	Elysian.....	Elysian.....	Minneapolis & L.....	A. E. Comstock.....	3.70
165	W. Concord.....	W. Concord.....	Twin Cities.....	J. Corbett.....	3.60
161	Ellington.....	Ellington.....	Local.....	P. J. Norton.....	3.60
10	Huntley.....	Huntley.....	Twin Cities.....	Fancher & M.....	3.70
29	Western.....	Western.....	Local.....	T. B. Roberts.....	3.70
189	Pine Island.....	Pine Island.....	Twin Cities.....	Parkens Bros.....	3.40
125	Elysian.....	Elysian.....	Local.....	H. E. Comstock.....	4.00
123	Willmar.....	Willmar.....	Twin Cities.....	M. Peterson.....	3.98
128	Morris.....	Morris.....	Local.....	R. J. Hale.....	3.83
183	Cannon Falls.....	Cannon Falls.....	Twin Cities.....	O. S. Benson.....	3.60
188	Hudson.....	Alexandria.....	Twin Cities.....	Fred Meade.....	3.50
96	Hampton.....	Hampton.....	Twin Cities.....	P. Endres.....	.....
110	Stanton.....	Hampton.....	Minneapolis.....	E. O. Endburg.....	3.62
168	Verndale.....	Verndale.....	Minneapolis.....	Dickson Bros.....	3.55
.....	Dennison.....	Dennison.....	Twin Cities.....	E. Denning.....	3.50
100	St. Michaels.....	St. Michaels.....	Twin Cities.....	Stiller & McK.....	4.00
62	Pine Island.....	Pine Island.....	St. Paul.....	Crescent Creamery Co.....	3.55
194	Fisher.....	Fisher.....	Local.....	.....	3.50
197	Beltrami.....	Beltrami.....	Duluth.....	Russia.....	4.00
192	Lambert.....	McIntosh.....	St. P. & G. Forks.....	.....	.....
86	Lansing.....	Lansing.....	Local.....	C. A. Williams.....	4.02
126	Le Roy.....	Le Roy.....	St. Paul.....	John Frank.....	.....
171	Morristown.....	Morristown.....	Local.....	A. F. Jones.....	.....
172	Armour.....	Armour.....	Local.....	F. J. Johnson.....	.....
173	Pennock.....	Pennock.....	Local.....	R. Rassmussen.....	.....
176	Lake Sarah.....	Garvin.....	Local.....	G. Peterson.....	.....
187	Varco.....	Austin.....	Twin Cities.....	.....	.....
190	Hutchinson.....	Hutchinson.....	Twin Cities.....	C. D. McEwen.....	.....
185	Ashby.....	Ashby.....	Twin Cities.....	W. L. Chappel.....	.....
182	Crookston.....	Crookston.....	Local.....	E. D. Childs.....	.....



## PART V.

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# REPORT OF THE MINNEAPOLIS OFFICE.

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Minneapolis, Minn., July 31, 1896.

Hon. Berndt Anderson, Commissioner,

Sir: We hereby submit to you the result of our work during the past two years among the dairies tributary to Minneapolis, and also the food inspection of articles that come under our state laws. We especially desire to call attention to the great improvement in the cleanliness of the dairies and the sanitary condition generally. This has been brought about by a firm adherence to a standard of perfection which can be found in many dairies in this district. We are pleased to call your attention to the increase in fat in milk samples as compared with 1894 and 1895, which is far above the legal standard. The showing as a whole is a very flattering one for the department. Below we submit a synopsis of our dairy inspection and a comparison of 1894 and 1895 with 1896; also the number of samples of milk taken from trains, wagons, and stores, and tested at the Minneapolis office. We insert here a portion of our report to you in April, 1895, of stable inspection:

The showing is a very satisfactory one, and the public is requested to closely scan the report and note the very decided improvement that is going on. This improvement has not been accomplished without earnest and careful work on the part of the commission, and the public is assured that the improvement will continue in all directions till a dirty dairy tributary to this city will be unknown.

This inspection was done principally in February and March, and where dairies were found dirty then, and so reported here, the inspectors have by earnest work, obtained a very much more favorable condition than is reported here. In fact, there are at present but very few dirty dairies to be found.

A comparison of 1894 with 1895 will be interesting:

	1894.	1895.
Milch cows.....	6,856	6,402
Dairies .....	263	273
Stables extra clean.....	19	57
Stables clean .....	99	164
Stables fairly clean.....	88	42
Stables dirty .....	40	9
Stables very dirty.....	17	1
Stables where cows are extra clean.....	13	72
Stables where cows are clean.....	80	91
Stables where cows are fairly clean.....	83	58
Stables where cows are dirty.....	67	49
Stables where cows are very dirty.....	20	3

Ventilation and drainage have been carefully looked after, and by another year there is every prospect of a very decided improvement in this line, as instructions have been given in every instance where either is deficient. Foul ponds have been fenced or drained and the water supply carefully looked after. Improvement is constantly going on and the public may rest assured that the vigilance of the department will not be relaxed.

Respectfully submitted,

C. B. DAVIS,  
J. E. GETMAN,  
Inspectors.

#### INSPECTION OF COW BARN.

J. N. Krohn, Western Avenue Road—No. 1059; cows fair; stable fair, with uneven floor.

L. C. Nelson, Western Avenue Road—No. 966; cows fair; stable fair, with uneven floor.

Frank Moeser, St. Louis Park—No. 1034; cows extra clean; stable clean, well kept and in fine condition.

D. D. Sullivan, Cedar Lake Road—No. 6158; cows mostly dirty; barn clean; trench too shallow.

E. W. Johnson, St. Louis Park—No. 5095; cows extra clean; barn clean and well kept.

J. Olson, Cedar Lake Road—No. 65; cows clean; stable clean.

Christ Sorenson, Cedar Lake Road—No. 934; cows clean; stable clean.

J. J. Moldstad, Motor Line Road—No. 6004; cows clean; stable clean.

H. N. Kroohn, Cedar Lake Road—No. 6135; cows mostly dirty; barn clean; trench too shallow.

A. Busse, Cedar Lake Road—No. 2413; cows dirty, with improvement on recent inspection; stable fair.

S. Olson, Cedar Lake Road—No. 907; cows clean; stable fairly clean

H. C. Johnson, Cedar Lake Road—No. 1135; cows clean; stable new, extra clean and well ventilated.

M. Rey, Cedar Lake Road—No. 1026; cows clean; stable clean.

L. Engell, Cedar Lake Road—No. 946; cows clean; stable clean, well kept and dry.

Levander Bros., Cedar Lake Road—No. 6039; cows clean; stable clean.

J. C. Hallron, Cedar Lake Road—No. 1097; cows fair; stable clean.

H. Anderson, Minnehaha Ave.—No. 3040; cows clean; stable clean.

P. G. Anderson, Minnehaha Ave.—No. 948; cows dirty and poorly tended; barn clean.

Hanson & Nelson, Minnehaha Falls—No. 2909; cows clean; stable clean.

L. M. Gamalgard, Fort Snelling Road—No. 5029; cows dirty; stable fair; ventilation poor.

E. C. Wright, Fort Snelling Road—Sells milk at Fort Snelling; cows dirty; stable clean.

W. H. Wright, Fort Snelling Road—Sells milk at Fort Snelling; cows mostly clean; stable clean.

H. P. Hanson, Fort Snelling Road—No. 1073; cows clean; stable clean.

Rasmussen Bros., Twenty-eighth Ave. South Road—No. 1004; cows fair; stable fair.

Philip Adelman, Twenty-eighth Ave. South Road—Sells to L. Drongesen; cows dirty; stable clean.

Larson Bros., Twenty-eighth Ave. South Road—No. 916; cows extra clean and well tended; stable extra clean and well kept.

Rasmussen Bros., Twenty-eighth Ave. South Road—No. 998; cows clean; stable clean.

J. Bandholz, Twenty-eighth Ave. South Road—No. 2607; cows extra clean; stable clean.

Rasmussen & Crohon, Twenty-eighth Ave. South Road—No. 1022; cows extra clean; stable clean.

Nord & Larson, Twenty-eighth Ave. South Road—No. 2906; cows clean; stable clean.

P. C. Larson, Twenty-eighth Ave. South Road—No. 1028; cows clean; stable clean; ventilation poor.

D. F. Coveney, River Road—No. 918; cows extra clean and well bedded; stable extra clean, well kept, whitewashed, dry and roomy.

Paul Peterson, River Road—No. 3035; cows fairly clean; barn clean.

Swan A. Anderson, River Road—No. 6052; cows clean; stable extra clean and well kept, with good system of tying cows; marked improvement over last year.

William Quile, Brooklyn Center—No. 1052; cows fairly clean; stable clean and roomy, with good system of tying cows.

Peterson & Newberg, Brooklyn Center—No. 2594; cows clean; stable clean.

P. Engvall, Brooklyn Center—No. 951; cows fairly clean; stable clean; ventilation poor.

F. G. Kinkenwerder, Camden Place—No. 6059; cows extra clean and neat, and well bedded with sawdust; stable extra clean and neat and well managed.

A. Horstrup, Camden Place—No. 1047; cows fair; stable fair.

S. M. Parker, Robbinsdale—Cows extra clean and neat; stable extra clean, neat and dry, and fitted with Parker's patent refuse receiver.

Malburn Bros., Robbinsdale—Cows clean; stable clean.

N. P. Johnson, Bass Lake Road—No. 1113; cows clean; stable clean and roomy.

L. Carlson, Bass Lake Road—No. 6060; cows clean; stable clean, with marked improvement over last year.

Baumgartner Sons, Bass Lake Road—No. 1019; cows dirty, with improvement on recent inspection; barn dirty.

H. Schuler, Bass Lake Road—No. 1061; cows fair; stable fair.

Matt Schuler, Rockford Road—No. 969; cows fairly clean; stable clean.

P. Behman, Rockford Road—No. 984; cows fairly clean; stable clean.

Jacob Kranz, Crystal Lake Town—No. 2458; cows fairly clean; stable clean.

R. Hanson, Crystal Lake Town—No. 1072; cows clean; stable clean.

Paul Wind, Crystal Lake Town—No. 1028; cows clean; stable clean.

P. O. Johnson, Johnson Road—No. 993; cows clean and neat; stable clean and well managed.

R. C. Moser, Johnson Road—No. 1025; cows dirty, with improvement on recent inspection; stable clean; ventilation poor.

Anderson Bros., Watertown Road—No. 4054; cows clean; stable clean.

P. S. Miller, Watertown Road—No. 2905; cows extra clean and well tended; stable extra clean, well kept, neat and dry; ventilation good.

N. L. Anderson, Watertown Road—No. 2441; cows extra clean and well tended; stable extra clean, well kept and neat; ventilation good.

P. E. Neilson, Watertown Road—No. 1048; cows dirty, with improvement on recent inspection; stable fairly clean, but damp.

Turner Bros., Watertown Road—No. 894; cows extra clean and well tended; stable extra clean and well managed; no stanchions used; good system of tying cows.



Minneapolis Dairy Company, Watertown Road—No. 1122; cows fairly clean; stable clean.

C. Christensen, Watertown Road—No. 928; cows mostly dirty, with improvement on recent inspection; stable fairly clean.

Erickson Bros., Medicine Lake Road—No. 1505; cows clean; stable clean.

Mrs. Frank Ward, Medicine Lake Road—No. 1000; wholesale to St. Barnabas Hospital; cows mostly dirty; stable clean.

David Luby, Watertown Road—No. 989; cows extra clean and well tended; stable extra clean and well managed; ventilation good.

J. H. Miller, Minnetonka Road—No. 945; cows clean; stable clean.

L. Pierson, Watertown Road—No. 2899; cows clean; stable clean.

Jordan Bros., Watertown Road—No. 955; cows fair; stable clean.

A. Anderson, Watertown Road—No. 994; cows extra clean and well tended; stable extra clean.

J. Nelson, Watertown Road—No. 1127; cows clean; stable clean; no stanchions; good system of tying cows.

C. Varner, Watertown Road—No. 968; cows fairly clean; stable clean.

P. Swanson, Sixth Ave. Road—No. 117; cows clean; stable clean, dry and well kept.

John G. Lundin, Sixth Ave. Road—No. 975; cows dirty, with improvement on recent inspection; stable fairly clean; ventilation poor.

Knudson & Madson, Sixth Ave. Road—No. 1029; cows clean; stable clean; ventilation poor.

K. C. Knudson, Sixth Ave. Road—No. 6083; cows clean; stable clean; ventilation poor.

J. E. Foss, Sixth Ave. Road—No. 1069; cows clean; stable clean; ventilation poor; marked improvement over last year.

Rasmus Johnson, Thirty-fourth Ave. South—No. 1748; cows fairly clean; barn fairly clean; ventilation poor.

Christ Nelson, Twenty-eighth Ave. South Road—No. 908; cows clean; stable clean; ventilation poor.

C. Ewald, Twenty-eighth Ave. South Road—No. 970; cows fairly clean; stable clean.

C. Jensen, Twenty-eighth Ave. South Road—Cows dirty, with improvement on last inspection; barn fairly clean; ventilation very poor.

N. Olson, Forty-second St. South—No. 5013; cows clean; stable clean.

H. C. Jensen, Forty-second St. South—No. 1014; cows fairly clean; stable clean.

George Peterson, Forty-second St. Road—No. 6004; cows fairly clean; stable clean; ventilation poor.

Olson & Larson, Forty-second St. Road—No. 2841; cows clean; stable clean.

O. A. Nordberg, Forty-second St. South—No. 1043; cows fairly clean; stable clean.

N. P. Broberg, North Town—No. 5539; cows fairly clean; stable clean.

Sorenson & Peterson, North Town—No. 1502; cows dirty, with improvement on recent inspection; stable fairly clean.

C. Hansen, Fridley Park—No. 1074; cows clean; stable clean; ventilation poor.

A. J. Rosenthal, Fridley Road—No. 956; cows fairly clean; stable clean; ventilation poor.

Reidel & Nelson, Fridley—No. 917; cows extra clean and well tended; stable extra clean, whitewashed and roomy; ventilation good; milk house with running spring water.

Charles C. Hays, Fridley—No. 4019; cows dirty, with improvement on recent inspection; stable clean.

H. Christenson, Fridley—No. 954; cows mostly clean; stable clean, but uneven floor.

S. Knudson, Fridley—No. 1105; cows dirty, with improvement on recent inspection; stable clean; ventilation poor.

O. Hattron, Fridley—No. 6117; cows mostly dirty; stable fairly clean.

Gust Sunde, Fridley—No. 1114; cows clean; stable clean and well kept.

W. C. Wheeler, Fridley—No. 1556; cows clean; stable clean; no stanchions; good system of tying cows.



P. Christenson, Fridley—No. 403; cows dirty, with improvement on recent inspection; stable clean.

H. Hawkinson, Fridley—No. 4032; cows fairly clean; stable clean.

M. Davison, Fridley—No. 962; cows clean; stable clean.

L. H. Hoyt, Main St. NE.—No. 1006; cows clean; stable clean; ventilation poor.

Andrew Nelson, Main St. NE.—No. 6078; cows clean; stable clean.

H. M. Verrill, Main St. NE.—Cows fairly clean; stable clean.

John S. Anderson, Main St. NE.—No. 974; cows fairly clean; stable fairly clean.

Peter Sorenson, Central Ave.—No. 1002; cows dirty, with improvement on recent inspection; stable fairly clean; ventilation poor.

Nelson & Jackson, Central Ave.—No. 911; cows fairly clean; stable clean.

Peter Rasmusson, Central Ave.—Cows dirty; decided improvement on recent inspection; stable fairly clean; ventilation poor; no stanchions; good system of tying cattle.

C. Christoffer, Central Ave.—No. 1495; cows dirty, with improvement on recent inspection; stable dirty.

A. Smiley, Silver Lake Road—Cows fairly clean; barn fairly clean; no stanchions used; good system of tying cattle.

E. Backman, Silver Lake Road—No. 5033; cows fairly clean; stable fairly clean.

F. B. Philbrook, Silver Lake Road—Sells to Johnson Bros.; cows dirty; stable clean; ventilation poor.

Johnson Bros., Silver Lake Road—No. 2908; cows dirty, with marked improvement on recent inspection; stable clean; ventilation poor.

B. W. Higgins, Central Ave.—No. 1568; cows clean; stable extra clean; well ventilated; milkhouse detached, neat and clean.

Olof Foss, Silver Lake Road—No. 1894; cows fairly clean; stable fairly clean; ventilation poor.

S. Swanson, Silver Lake Road—No. 6088; cows fairly clean; stable fairly clean; ventilation poor.

Neil McCullum, Silver Lake Road—No. 5065; cows fairly clean, with marked improvement on recent inspection; stable clean; ventilation good.

C. A. Eckberg, Short Line Bridge—No. 5009; cows fairly clean; stable clean.

P. Peterson, Short Line Bridge—No. 6082; cows fairly clean; stable clean; ventilation poor.

Nodell & Son, Short Line Bridge—No. 2558; cows extra clean and well bedded; stable neat, clean and well kept; ventilation good; milkhouse with flowing spring water.

The report follows, the number preceding the name of the dairy being its registered number with the commission:

1047—A. J. Horstrup; Humboldt Ave.; cows dirty; barn fairly clean; ventilation fair.

6059—G. F. Winkenwerder, Camden Place; cows extra clean; barn extra clean; ventilation good; cows well tended.

1052—W. Quiel, Brooklyn; cows fairly clean; barn fairly clean; ventilation fair; good system of tying.

2594—Newberg & Avinson, Brooklyn; cows mostly clean; barn clean; ventilation fair.

959—P. Engvall, Brooklyn; cows mostly clean; barn clean; ventilation fair.

6052—Swan A. Anderson, near River road; cows mostly clean; barn clean; ventilation poor; good system of tying.

D. F. Coveney, River Road North; cows extra clean and well tended; barn extra clean and well kept and whitewashed; ventilation good.

1102—Peterson & Anderson, Crystal Lake road; cows clean; barn extra clean; stable well kept; ventilation good.

S. M. Parker, Robbirsdale; cows extra clean, neat, well kept and bedded;

barn extra clean; fitted with Parker's patent sanitary system; ventilation good; no bad odors.

1113—N. P. Johnson, Bass Lake road; cows clean; barn extra clean and whitewashed; ventilation good.

6060—Louis Carlson, Bass Lake road; cows clean; barn clean; ventilation good; good system of tying.

Charles Reizhart, Rockford road; cows dirty; barn fairly clean; ventilation good.

7117—John Hug, Rockford road; cows mostly clean; barn clean; ventilation fair; sells to Crescent Creamery Company.

2458—J. Kranz, Rockford road; cows mostly clean; barn clean; ventilation poor.

948—Swanson & Bender, Rockford road; cows extra clean and neat; barn extra clean and well kept; ventilation good.

969—Matt Schuller, Rockford road; cows extra clean; barn extra clean; ventilation good.

2908—Johnson Bros., Silver Lake road; cows extra clean; barn extra clean; ventilation good.

928—C. Christianson, Silver Lake road; cows clean; barn clean; ventilation poor.

6088—Swan Swanson, Silver Lake road; cows clean; barn fairly clean; ventilation poor.

5065—Neil McCollum, Silver Lake road; cows extra clean; barn extra clean and whitewashed; ventilation good.

7047—Ole Hawkins, Fridley; cows clean; barn fairly clean; ventilation poor.

Adam Schier, Fridley; cows dirty; barn dirty; ventilation poor.

1074—C. Hansen, Fridley; cows fairly clean; barn clean; ventilation poor.

403—P. Christianson, Fridley; cows clean; barn clean; ventilation poor.

1556—W. C. Wheeler, Fridley; cows clean; barn extra clean; ventilation fair.

962—M. Davietson, Fridley; cows extra clean; barn clean; ventilation poor.

5041—Nicholas Delwo, Long Lake road; cows extra clean and very neat; barn extra clean, very neat, fitted with Parker's patent sanitary system; ventilation good; no bad odors.

9012—Olson & Christianson, Long Lake road; cows fairly clean; barn clean; ventilation poor.

1076—E. B. Trosseth, Long Lake road; cows extra clean; barn extra clean; ventilation good.

6055—Duke McCollum, Long Lake road; cows extra clean and neat; barn extra clean and whitewashed; ventilation extra good.

2816—J. B. Ansnes, Long Lake road; cows clean; barn clean; ventilation fair.

E. Cooley, near Hillside cemetery; cows extra clean; barn extra clean; ventilation good; good system of tying.

5033—E. Backman, Long Lake road; cows fairly clean; barn fairly clean; ventilation good.

A. Doerfler, between Lyndale and Portland Aves.; cows extra clean and neat; barn extra clean, with cement floors; ventilation good, with no bad odors; wholesales to J. Comstock.

A. Dill, Lyndale Ave. road; cows extra clean; barn extra clean; ventilation good; wholesales to J. Comstock.

Louis Kell, Lyndale Ave. road; cows extra clean; barn extra clean; ventilation good; wholesales to H. H. John.

Henry Kell, Lyndale Ave. road; cows extra clean; barn extra clean; ventilation good; wholesales to H. H. John.

John B. Haeg, Lyndale Avenue road; cows extra clean; barn extra clean; ventilation good; wholesales to T. Oxborough.

J. I. Dean, Lyndale Ave. road; cows mostly clean; barn clean; ventilation good; wholesales to T. Oxborough.

Robert Oxborough, between Lyndale and Penn Ave. road; cows extra clean; barn extra clean; ventilation good; wholesales to Thomas Oxborough.

Thomas Oxborough, between Lyndale and Penn Ave. road; cows fairly clean; barn clean; ventilation good; wholesales to Mrs. John Burke and J. Kelroy.

1402—Knute Lee, Eighteenth avenue and Johnson St. NE.; cows fairly clean; barn clean; ventilation fair.

4157—G. P. Jernell, 2180 B St. NE.; cows clean; barn clean; ventilation good.

A. Borgren, B St. and Twenty-second Ave. NE.; cows clean; barn fairly clean; ventilation good.

7025—C. P. Christianson, 2838 Polk St. NE.; cows dirty; barn dirty, wet and poorly drained; ventilation poor.

J. F. Johnson, 2830 Central Ave. NE.; cows clean; barn clean; ventilation good.

J. Jensen, Twenty-sixth Ave. and Washington St. NE.; cows clean; barn clean; ventilation good.

900—A. Perie, 407 Twenty-six-and-one-half St. NE.; cows mostly dirty; barn in a generally poor condition; ventilation poor.

940—N. N. Therres, 1310 Second St. NE.; cows mostly clean; barn clean; ventilation fair.

2096—Nord & Larson, Twenty-eighth Ave. South road; cows extra clean and very neat; barn extra clean and whitewashed; ventilation good.

2267—John Melander, Main St. NE.; cows clean; barn clean; ventilation good.

974—John S. Anderson, Main St. NE. road; cows clean; barn clean; ventilation good.

1568—Henry McEachern, Central Ave. road; cows extra clean; barn extra clean; ventilation good.

1002—Mary Sorensen, Central Ave. road; cows clean; barn clean; ventilation poor.

1459—C. Christoffer, Central Ave. road; cows mostly clean; barn clean; ventilation good.

3644—Peter Rasmusson, Central Ave. road; cows clean; barn clean; ventilation poor.

9011—Nelson & Jackson, Central Ave. road; cows clean; barn clean; ventilation fair.

1111—Gust Sunde, Fridley; cows extra clean; barn clean; ventilation fair.

1495—Ole Foss, Fridley; cows fairly clean; barn fairly clean; ventilation poor.

6170—Ole Hattron, Fridley; cows extra clean; barn extra clean; ventilation good, with good system of tying.

Alfred Smiley, Silver Lake road; cows fairly clean; barn fairly clean; ventilation poor.

5031—M. Weiss, Silver Lake road; cows fairly clean; barn fairly clean; ventilation poor.

4110—G. H. Partridge, Silver Lake road; cows extra clean; barn extra clean; ventilation good.

Alex McInnis, Silver Lake road; cows clean; barn clean; ventilation poor.

R. B. Philbrook, Silver Lake road; cows extra clean; barn extra clean; ventilation good.

7084—D. McCollum, Silver Lake road; cows clean; barn clean; ventilation good.

1568—Kenney Bros., Silver Lake road; cows extra clean and very neat; barn extra clean and very neat; ventilation good; no bad odors.

Peter Johnson—Buys of Thorndike & Mohm.

Crescent Creamery Company—Buys of Charles Reizhart, John Hug, C. W. Day.

N. H. Shepard—Buys of C. H. Hanke.

E. A. Hoyt; buys of William Ray & Son.

J. W. Hays—Buys of Charles Carpenter, E. H. Weatherhead.

Northwestern Milk Company—Buys of R. H. Davis.

E. W. Cousins—Buys of J. D. Goodspeed.

Rice County Milk Company—Buys of C. Christianson, of Hopkins.

South Side Creamery—Buys of Alvis Glesner.



Otto Rehmke, Long Lake road; cows extra clean; barn extra clean; ventilation good, with good system of tying cattle.

7112—Frank M. Cadwell, Lake Johanna; buys of Otto Peterson.

Otto Peterson, Lake Johanna; cows clean; barn clean; ventilation fair; sells to Frank M. Cadwell.

F. Peterson, Broadway road; cows mostly clean; barn clean; ventilation good.

957—Rasmusson & Jensen, Broadway road; cows mostly extra clean; barn clean; ventilation good

Hanson & Christianson, near Broadway road; cows clean; barn clean; ventilation good, with good system of tying cattle.

Hogan Hegdahl, 909 Knox avenue; cows clean; barn clean; ventilation good.

1005—H. Klinker, Thirty-sixth avenue North and Bryant; cows clean; barn clean; ventilation good.

2507—V. Greenstein, Knox Ave. and Thirty-sixth Ave. North; cows clean; barn clean; ventilation good.

Otto Swanson, James Ave. and Thirty-fourth Ave. North; cows clean; barn clean; ventilation good, with good system of tying cattle.

Hogan Hegdahl, 909 Knox Ave.; cows clean; barn clean; ventilation good.

1005—H. Klinker, Thirty-sixth Ave. North and Bryant; cows clean; barn clean; ventilation good.

2507—V. Greenstein, Knox Ave. and Thirty-sixth Avenue North; cows clean; barn clean; ventilation good.

Otto Swanson, James Ave. and Thirty-fourth Ave North; cows clean; barn clean; ventilation good, with good system of tying cattle.

Star Creamery—Buys of P. R. Person, Anderson & Walstedt, L. J. Larson, Henry Richardson.

T. Oxborough—Buys of John B. Haeg, J. I. Dean, Robert Oxborough.

Mrs. John Burke—Buys of W. W. Bartholomew, Thomas Oxborough.

J. Kelroy—Buys of Thomas Oxborough.

Alexander & Shepard, Short Line Bridge—No. 25; cows extra clean; well bedded; barn neat, clean and well managed; ventilation good; milkhouse with flowing spring water.

Glennan & McGraw, St. Anthony Ave.—Cows dirty, stable dirty, dark and poorly ventilated.

E. J. Johnson, University Ave.—No. 4067; cows clean; stable clean; ventilation poor.

Nels S. Jepson, University Ave.—No. 4006; stable clean; cows clean; ventilation good.

H. T. Sabin, Prospect Park—No. 6079; cows clean; stable clean.

F. E. Jordan, Prospect Park—Cows dirty; stable clean.

Sam Kuenze, Long Lake Road—No. 2629; cows dirty; stable fairly clean; no stanchions; good system of tying.

Olson & Christenson, Long Lake Road—No. 912; cows clean; stable clean.

Edward B. Trosseth, Long Lake Road—No. 1076; cows clean; stable clean and well kept.

D. McCullum, Long Lake Road—Cows clean; stable clean.

J. B. Ansnes, Long Lake Road—No. 2816; cows clean; stable clean; ventilation poor.

Charles Bauman, Long Lake Road—No. 2151; cows clean; stable clean; ventilation poor.

E. Cooley, Twenty-second Ave. NE.—Cows dirty; stable fairly clean; ventilation poor.

Nick Therres, 1310 Second St. NE.—No. 940; cows dirty, with improvement on last inspection; stable clean; no stanchions; good system of tying cattle.

A. Perie, 407 Twenty-six-and-one-half Ave. NE.—No. 900; cows dirty and poorly tended; stable low, wet, uneven floor; ventilation very poor.

R. Hanson, Twenty-sixth Ave. and Washington St. NE.—No. 2616; cows fairly clean; stable fairly clean; ventilation poor.

C. E. Davis, 2714 Taylor St. NE.—No. 2267; cows fairly clean; stable clean; no stanchions; good system of tying cattle.

J. Christensen, 2838 Polk St. NE.—No. 6085; cows fairly clean; stable fairly clean; ventilation poor; no stanchions; good system of tying cattle.



A. Bogren, Twenty-second Ave. and A St. NE.—No. 4177; cows clean; stable clean.

P. Yernell (successor to H. Gaul), Twenty-second Ave. and B St. NE.—No. 4175; cows fairly clean, with marked improvement on recent inspection; stable fairly clean; no stanchions used, good system of tying cattle.

Knute Lee, Johnson St. and Eighteenth Ave. NE.—No. 4002; cows extra clean and neat; stable extra clean and well managed; no stanchions; good system of tying cattle.

W. M. Corbett, Broadway Road—No. 1133; cows fairly clean; stable clean; no stanchions; good system of tying cattle.

Rasmussen & Jansen, Broadway Road—No. 957; cows fairly clean; stable clean.

F. Peterson, Broadway Road—No. 6086; cows fairly clean; stable clean.

G. Loftus, Como Ave.—No. 6047; cows extra clean and neat; stable extra clean and neat and well managed; ventilation good.

P. Hansen, Como Ave.—No. 1100; cows extra clean and neat; stable extra clean, neat and well managed; ventilation good.

Chris Peterson, near Experimental Farm—No. 1007; cows extra clean and well bedded; stable clean and well kept.

H. J. Christensen, Como Ave.—No. 1016; cows clean and well bedded; stable clean and well kept; ventilation good.

J. Peterson, Como Ave.—No. 1017; cows clean and well bedded; stable clean and well kept; ventilation good.

C. E. Hall, 1519 Winter St. NE.—No. 1010; cows dirty; stable dirty, poorly managed.

C. C. Fordice, 309 Buchanan St. NE.—No. 2516; cows very dirty, foul and neglected; stable dirty and poorly tended; ventilation poor.

Anderson & Peterson, Crystal Lake Road—No. 1112; cows extra clean; stable extra clean; ventilation good.

Halvorson Bros., Riverside Ave.—No. 999; cows extra clean and well bedded; stable extra clean and well kept; ventilation good; no stanchions; good system of tying cattle.

A. G. Rosendahl, Forty-second Ave. South—No. 2204; cows clean; stable clean; no stanchions; good system of tying cattle.

P. Swenson, Forty-second Ave. South—No. 5045; cows dirty; stable fairly clean; ventilation poor.

Johanson & Nelson, Forty-fourth Ave. and Lake St.—No. 1021; cows clean; stable clean; ventilation good.

A. B. Oradson, Forty-seventh Ave. and Thirty-second St. South—No. 6014; cows extra clean; stable clean; ventilation good.

H. P. & N. Olson, Riverside—No. 987; cows extra clean; stable clean; ventilation good.

Peterson Bros., Riverside—No. 2826; cows fairly clean; stable fairly clean; ventilation good.

A. Carlson, Forty-second Ave. and Lake St. South—No. 924; cows clean; stable clean; ventilation good.

A. J. Larson, 3320 Thirty-first St. South—No. 967; cows extra clean; stable extra clean and well managed; ventilation good.

Peterson & Mattson, Lake St. and Thirty-fourth Ave. South—No. 82; cows extra clean; stable extra clean and neat; milkhouse detached.

M. Seiersen, 2818 Thirty-first Ave. South—No. 2255; cows clean; stable clean; no stanchions; good system of tying cattle.

J. Peterson, 2800 Thirty-second Ave. South—No. 6055; cows extra clean; stable clean; no stanchions; good system of tying cattle.

G. A. Hanson, 2808 Thirty-first Ave. S.—No. 6101; cows dirty; with improvement on recent inspection; stable poor, wet, and uneven floor; ventilation poor; no stanchions; good system of tying cattle.

Mrs. A. E. Grunnet, Thirty-first Ave. and Twenty-eighth St.—No. 2802; cows clean; stable clean; ventilation poor.

Ole Johnson, 2820 Thirty-second Ave. South—No. 978; cows clean; stable clean; no stanchions; good system of tying cattle.

G. F. Ogren, 2805 Thirty-first Ave. South—No license; cows dirty; stable fairly clean; ventilation poor.

O. Young, 2922 Thirty-third Ave. S.—No. 1088; cows fairly clean; stable fairly clean.

C. Syreen, 3119 Lake St. South—No. 1032; cows dirty; stable fairly clean.

Nels Hanson, Thirty-eighth St. and Twenty-eighth Ave. South—No. 988; cows dirty; stable dirty; ventilation poor.

W. Widen, 3700 Twenty-third Ave. S.—No. 6118; cows clean; stable clean; ventilation poor.

A. Jensen, 3616 Twenty-first Ave. South—No. 5072; cows clean; stable extra clean and well kept; ventilation good.

H. Thompson, Cedar Ave. Road—No. 951; cows clean; stable clean; ventilation good; milkhouse detached.

J. Christensen, Cedar Ave. Road—No. 5043; cows fairly clean; stable clean; ventilation poor.

C. H. Webster, Bloomington Ave.—No. 5032; cows extra clean; stable clean; ventilation poor.

Nordgren & Larson, Bloomington Ave. and Forty-eighth St.—No. 5055; cows extra clean and neat; stable extra clean; well managed.

R. C. Jensen, Bloomington Ave. and Forty-eighth St.—No. 4088; cows extra clean; stable clean; ventilation good.

John Mahon, Fourteenth Ave. and Forty-fifth St.—No. 4036; cows fairly clean; stable fairly clean; ventilation poor.

Peterson Bros., Thirty-eighth St. and Thirteenth Ave. South—Cows clean; stable fairly clean; ventilation poor.

J. A. Wile, 4010 Chicago Ave.—No. 6102; cows extra clean; stable extra clean; ventilation good; stable well managed, with stalls and excellent system of feed troughs and cattle ties.

Nels Mortenson, Chicago Ave. Road—No. 995; cows clean; stable clean; ventilation poor.

Nels Anderson, Chicago Ave. Road—No. 920; cows extra clean and neat; stable extra clean, with sawdust used to absorb moisture.

William Nelson, Chicago Ave. Road—No. 4181; cows clean and well bedded; stable clean; ventilation good.

H. C. Hansen, Chicago Ave. Road—No. 6144; cows extra clean; stable extra clean and neat.

A. G. Carlson, Chicago Ave. Road—No. 1055; cows extra clean; stable clean.

A. C. Peterson, Chicago Ave. Road—No. 2609; cows extra clean and neat; stable extra clean.

Nelson & Hansen, Chicago Ave. Road—No. 923; cows extra clean and well tended; stable clean; ventilation good.

Hanson Soren, Lake Amelia—No. 1075; cows clean; stable clean; marked improvement over last year.

H. L. Bartholomew, Chicago Ave.—Sells to J. A. Johnson; cows extra clean; stable extra clean; milkhouse detached, neat and clean.

J. A. Johnson, Chicago Ave.—No. 6130; buys of H. L. Bartholomew.

Christensen Bros., Portland Ave.—No. 5000; cows extra clean; stable extra clean; milkhouse detached, neat and clean.

Jensen & Co., Portland Ave. Road—No. 904; cows fairly clean; stable fairly clean; ventilation poor.

J. L. Smith, Portland Ave. Road—No. 969; cows extra clean; stable extra clean; ventilation excellent; milkhouse detached.

Jacob Lohse, Portland Ave. Road—No. 1031; cows extra clean; stable extra clean and neat; ventilation good.

A. S. Peterson, Portland Ave. Road—No. 933; cows clean; stable clean; ventilation good.

Alvis Glasner, Portland Ave. Road—Sells to A. M. Blow; cows dirty; stable dirty; ventilation poor.

A. M. Blow, City—No. 2218; buys of Alvis Glasner; also V. Gregory, John Bradbury and Charles Townsend.

N. Erickson, Portland Ave. Road—No. 991; cows extra clean; stable extra clean; ventilation good.

Vernon Gregory, Portland Ave. Road—Sells to A. M. Blow; cows dirty; stable clean; ventilation good.

James Davis, Portland Ave. Road—Sells to South Side Milk Company; cows fairly clean; stable clean.

John Bradbury, Portland Ave. Road—Sells to A. M. Blow; cows clean; stable clean; ventilation good.

O. A. Dean, Nicollet Ave. Road—Sells to John Burke; cows dirty; stable clean; ventilation poor.

John Burke, Minneapolis—No. 898; buys of O. A. Dean, A. Carlson and J. I. Dean.

S. P. Fenlason, between Lyndale and Portland Aves.—No. 992; cows fairly clean; stable clean; ventilation good.

A. Doerfler, Lyndale Ave.—Sells to James Comstock; cows very dirty; stable clean.

S. R. Thomas, Lyndale Ave.—No. 2926; cows extra clean and in fine condition; stable clean; ventilation good.

C. H. Garvey, Lyndale Ave.—No. 985; cows extra clean; stable extra clean; ventilation good.

Johnson Bros., Lyndale Ave.—No. 929; cows extra clean; stable clean; ventilation good; milkhouse detached.

J. L. Jenkins, Lyndale Ave.—No. 963; cows extra clean; stable extra clean; ventilation good; milkhouse detached.

William Ray & Son, Lyndale Ave.—Sells to E. A. Hoyt; cows clean; stable clean.

E. A. Hoyt, 2269 Tenth Ave. South—Buys of William Ray & Son, R. D. Fitch and L. Humphrey.

J. D. Goodspeed, Lyndale Ave.—Sells to E. W. Cousins; cows clean; stable clean; ventilation good; no stanchions; good system of tying cattle.

E. W. Cousins, City—Buys of J. D. Goodspeed, E. F. Erwin and H. Fitch.

W. W. Bartholomew, Lyndale Ave.—Sells to John Kilroy; cows extra clean; stable extra clean; ventilation good.

Foss Bros., Lyndale Ave.—No. 6115; cows extra clean; stable extra clean; ventilation good.

E. F. Erwin, Lyndale Ave.—Sells to E. W. Cousins; cows extra clean; stable extra clean; ventilation good; no stanchions; good system of tying cattle.

Frank Wilson, Lyndale Ave.—Sells to J. Comstock; cows clean; stable clean.

J. Comstock, City—Buys of A. Doerfler and F. Wilson.

A. Dill, Lyndale Ave.—Sells to J. Wile; cows extra clean; stable extra clean; ventilation good.

Louis Kell, Lyndale Ave.—Sells to H. H. John; cows extra clean; stable extra clean; ventilation good.

H. H. John, Eleventh St., Minneapolis—Buys of Louis Kell, Henry Kell, David Haeg, J. H. Palmer, James Ray, Dean Richardson and James Tirney.

Henry Kell—Sells to H. H. John; cows extra clean; stable extra clean; ventilation good.

John Haeg, Lyndale Ave.—Sells to J. A. Wile; cows extra clean; stable extra clean; ventilation good.

J. I. Dean, Lyndale Ave.—Sells to John Burke; cows fairly clean; stable clean; ventilation good.

Andrew Carlson, between Lyndale and Penn Aves. South—Sells to John Burke; cows fairly clean; stable clean; ventilation good.

Robert Oxborough, between Lyndale and Penn Aves. South—Sells to Thomas Oxborough; cows extra clean; stable clean; ventilation poor.

John Kilroy, City—Buys of W. W. Bartholomew, V. Gregory, Oscar Amel.

Oscar Amel, Penn Ave. Road—Sells to John Kilroy; cows clean; stable clean; ventilation poor.

David Haeg, Penn Ave. Road—Sells to H. H. John; cows extra clean; stable extra clean; ventilation good.

Haden Fitch, Penn Ave. Road—Sells to E. W. Cousins; cows fairly clean; stable clean; ventilation good.

J. H. Palmer, Penn Ave. Road—Sells to H. H. John; cows extra clean; stable extra clean; ventilation good.

R. D. Fitch, Richfield Center—Sells to E. A. Hoyt; cows dirty; stable fairly clean; ventilation poor.



L. Humphrey, Richfield Center—Sells to E. A. Hoyt; cows extra clean; stable clean.

James Ray, Richfield Center—Sells to H. H. John; cows clean; stable clean.

O. A. Anderson, Carroll Settlement—Cows extra clean; stable extra clean and well managed; milkhouse detached, neat and clean.

James De Laney, Edina—Sells to L. J. Larson; cows extra clean; stable extra clean; ventilation good.

L. J. Larson, Carroll Settlement—No. 1037; buys of James De Laney, H. W. Richardson and W. H. Land.

E. A. Graham, Carroll Settlement—Cows extra clean; stable extra clean; ventilation good.

H. W. Richardson, Carroll Settlement—Sells to L. J. Larson; cows extra clean; stable extra clean; no stanchions; good system of tying cattle.

W. H. Lane, Edina—Sells to L. J. Larson; cows fairly clean; stable clean; no stanchions; good system of tying cattle.

Dean Richardson—Sells to H. H. John; cows fairly clean; stable clean.

C. W. Day, Carroll Settlement—Sells to Ole Frederickson; cows clean; stable clean.

Ole Frederickson, Richfield—No. 6069; buys of C. W. Day.

Charles Townsend, Richfield—Sells to A. M. Blow; cows dirty; stable fairly clean.

James Tierney, Penn Ave. Road—Sells to H. H. John; cows clean; stable clean; ventilation good.

J. A. Johnson & Bro., Richfield—No. 909; cows extra clean; stable extra clean; ventilation good.

A. W. Johnson, Richfield—No. 971; cows extra clean; stable extra clean; ventilation good.

M. H. Kelly, Third Ave. South and Forty-second St.—No. 1079; cows clean; stable clean.

P. A. Graham, Lake Harriet Boulevard—No. 996; cows clean; stable clean.

James A. Bull, Edina Mills—No. 5019; cows mostly dirty; stable clean; no stanchions; good system of tying cattle.

J. H. Craik, Edina Mills—No. 1063; cows clean; stable clean; no stanchions; good system of tying cattle.

Cooper Bros.—Sell to E. Gray; cows fairly clean; stable clean; no stanchions; good system of tying cattle.

Johnson & Hanson, Edina Mills—No. 1024; cows extra clean; stable clean; no stanchions; good system of tying cattle.

E. Gray, 3700 Hennepin Ave.—Buys of Cooper Bros., Edina.

J. Johnson, Edina Mills—No. 910; cows clean; stable clean.

George Code, Edina Mills—Sells to E. W. Cousins; cows clean; stable clean; ventilation good.

Frank Wilson, Edina Mills—Sells to J. Johnson; cows clean; stable extra clean; ventilation good.

C. H. Hanke, Excelsior Ave.—Sells to N. A. Shepard; cows clean; stable extra clean; ventilation good.

N. A. Shepard—No. 4008; buys of C. H. Hanke and T. D. Owens.

A. D. Sewell, Excelsior Ave.—No 1558; cows extra clean; stable clean; ventilation good.

T. D. Owens, Excelsior Ave.—Sells to N. A. Shepard; cows extra clean; stable extra clean; ventilation good.

C. Anderson, St. Louis Park—Cows clean; stable clean; ventilation poor.

Anderson Bros.—No. 944; St. Louis Park; cows clean; stable clean; ventilation poor.

L. H. Peterson, St. Louis Park—Cows clean; stable clean; ventilation good.

A. Samuelson, St. Louis Park—No. 6050; cows clean; stable clean; ventilation poor.

P. O. Thompson, St. Louis Park—No. 1036; cows extra clean; stable clean.

J. C. Johnson, St. Louis Park—No. 927; cows extra clean; stable clean.

G. H. Partridge, Silver Lake Road—Buys of Olson & Christensen.

Jacobson & Larson, Hopkins—Cows extra clean; stable extra clean; ventilation good.



Andrew J. Johnson, Hopkins—Cows fairly clean; stable clean; ventilation poor.

Neilson & Bakkeron, Minnetonka Mills—No. 961; cows clean; stable clean.

Schack Bros., Minnetonka Mills—Sells to Rice County Milk Company; cows clean; stable clean.

Rice County Milk Company, Nicollet Ave.—Buys of Schack Bros., C. Christenson and C. D. Burns.

C. Christenson, Minnetonka Mills—Sells to Rice County Milk Company; cows fairly clean; stable fairly clean.

C. D. Burns, Minnetonka Mills—Sells to Rice County Milk Company; cows fairly clean; stable clean.

August Anderson, Hopkins—Cows fairly clean; stable clean; ventilation good.

S. Johnson, St. Louis Park—No. 1096—Cows extra clean; stable clean; ventilation good.

Hogan Hegdahl, 2900 Knox Ave. North—No. 1050; cows clean; stable clean.

Otto Svanson, Thirty-fourth Ave. North and James Ave.—Cows clean; stable clean; ventilation poor.

L. Kahn, Thirty-fifth Ave. and Dupont Ave. North—No. 1093; cows fairly clean; stable fairly clean; ventilation poor.

H. Klinker, Bryant Ave. and Thirty-sixth Ave North—No. 1015; cows fairly clean; stable clean; ventilation poor.

M. Greenstein, Thirtieth Ave. and Knox Ave. North—No. 2507; cows dirty; stable clean; ventilation poor.

Pratt Bros., Plymouth Ave.—No. 4193; cows mostly dirty; stable fairly clean; ventilation poor.

John Anderson, 2121 Third Street South—No. 948; cows dirty and poorly tended; stable dirty and neglected; ventilation poor.

Nicholas Delwo, Long Lake Road—No. 5041; cows extra clean; stable extra clean; neat and well ventilated and fitted with Parker's patent refuse receiver.

Kinney Bros., Silver Lake Road—Cows extra clean; stable extra clean; ventilation good.

Chris Neilson, Watertown Road—No. 1048—Cows dirty, with improvement on recent inspection; stable fairly clean, but damp.

After finishing our stable inspection in May, 1896, the following report of work performed by us was submitted to you:

	1894.	1895.	1896.
Daries inspected.....	263	273	274
Cows inspected.....	6,856	6,402	6,629
Stables where cows were extra clean.....	13	72	125
Stables where cows were clean.....	80	91	94
Stables where cows were fairly clean.....	83	58	29
Stables where cows were dirty.....	67	49	26
Stables where cows were very dirty.....	20	3	.....
Stables that were extra clean.....	19	57	119
Stables that were clean.....	99	164	116
Stables that were fairly clean.....	88	42	31
Stables that were dirty.....	40	9	8
Stables that were very dirty.....	17	1	.....

James Comstock—Buys of E. F. Irwin, Frank Wilson, A. Doerfler, A. Dill.  
H. H. John—Buys of T. F. Lane, Dean Richardson, C. Townsend, James Tierney, Louis Kell, Henry Kell.

A. M. Blow—Buys of H. L. Bartholomew.

L. J. Larson, Carroll settlement; cows clean; barn extra clean; ventilation good; wholesales to Star Creamery.

Anderson & Nelson, Carroll settlement; cows extra clean; barn extra clean; ventilation fair.

Hanson Bros., Carroll settlement; cows extra clean and very neat; barn extra clean and very neat; ventilation good.

Henry Richardson, Carroll settlement; cows extra clean; barn extra clean; ventilation good; wholesales to Star Creamery.

T. F. Lane, Richfield; cows clean; barn clean; ventilation good, with good system of tying cattle; wholesales to H. H. John.

Dean Richardson, Richfield; cows clean; barn clean; ventilation good, with good system of tying cattle; wholesales to H. H. John.

C. W. Day, Richfield; cows clean; barn extra clean; ventilation good; wholesales to Crescent Creamery Company.

C. Townsend, Richfield; cows fairly clean; barn clean; ventilation good; wholesales to H. H. John.

6069—Ole Frederickson, Richfield; cows extra clean; barn extra clean; ventilation good.

971—A. W. Johnson, Richfield; cows extra clean; barn extra clean; ventilation good.

909—J. A. Johnson & Bro., Richfield; cows extra clean; barn extra clean; ventilation good.

James Tierney, Richfield; cows fairly clean; barn clean; ventilation good; wholesales to H. H. John.

W. W. Bartholomew, Lyndale Avenue road; cows extra clean; barn extra clean; ventilation good; wholesales to Mrs. John Burke.

Foss Bros., Lyndale Avenue road; cows extra clean; barn extra clean; ventilation good.

E. F. Irwin, Lyndale Avenue road; cows extra clean and well bedded; barn extra clean; ventilation good, with good system of tying cattle; wholesales to James Comstock.

Frank Wilson, Lyndale Avenue road; cows clean; barn clean; ventilation good; wholesales to James Comstock.

1095—Peter C. Larson, Chicago Avenue road; cows extra clean and neat; barn extra clean and neat; ventilation good.

H. L. Bartholomew, Chicago Avenue road; cows extra clean; barn extra clean and neat; ventilation good; wholesales to A. M. Blow.

C. H. Hanke, Excelsior road; cows dirty; barn clean; ventilation fair; wholesales to N. A. Shepherd.

1558—A. D. Sewell, Excelsior road; cows extra clean; barn clean; ventilation poor.

7149—A. M. Crosby, Excelsior road; cows dirty; barn clean; ventilation fair.

Cooper Bros., Edina Mills; cows extra clean; barn extra clean; ventilation good, with good system of tying cattle.

1024—Johnson & Hansen, Edina Mills; cows extra clean; barn extra clean; ventilation good, with good system of tying cattle.

W. Widen, Edina Mills; cows fairly clean; ventilation fair.

6088—A. E. Graham, Edina Mills; cows extra clean and neat; barn extra clean; ventilation good.

1079—Nels Olson, Third Ave. and Forty-second St.; cows extra clean; barn extra clean; ventilation good.

P. A. Graham, Lake Harriet boulevard; cows extra clean; barn extra clean; ventilation good.

6095—James A. Bull, Edina Mills; cows extra clean; barn extra clean; ventilation good.

Frank Wilson, Edina Mills; cows extra clean; barn extra clean; ventilation good.

910—J. Johnson, Edina Mills; cows extra clean; barn extra clean; ventilation good.

R. R. Person, Edina Mills; cows clean; barn clean; ventilation good; wholesales to Star Creamery.

Anderson & Walstedt, Edina Mills; cows extra clean; barn extra clean; ventilation good; wholesales to Star Creamery.

O. A. Anderson, Edina Mills; cows extra clean and well bedded; barn extra clean; ventilation good.

6053—Peter Hansen, Main St. Northeast; cows clean; barn clean; ventilation good.

N. G. Hansen, Main St. Northeast; cows fairly clean; barn clean; ventilation good.

1006—L. H. Hoyt, Main St. Northeast; cows clean; barn clean; ventilation good.

2955—N. P. Broberg, Northtown; cows clean; barn clean; ventilation good.

6078—Andrew Nelson, Main St. Northeast; cows extra clean; barn extra clean; ventilation good.

H. M. Varrell, Main St. Northeast; cows clean; barn clean; ventilation good.

Holm & Thompson, St. Louis Park; cows extra clean; barn extra clean; ventilation good.

927—Johnson & Jetson, St. Louis Park; cows extra clean; barn clean; ventilation fair.

1063—Fred Arthur, St. Louis Park; cows extra clean; barn extra clean; ventilation fair.

A. T. Anderson, Hopkins; cows extra clean; barn extra clean; ventilation good.

C. Christianson, Hopkins; cows fairly clean; barn clean; ventilation poor; sells to Rice County Milk Company.

A. J. Johnson, Hopkins; cows mostly dirty; barn clean; ventilation good.

Jacobson & Larson, Hopkins; cows extra clean and neat; barn extra clean and neat; ventilation good.

995—Nels Mortinson, Chicago Ave.; cows clean; barn clean; ventilation good.

4181—William Nelson, Chicago Avenue road; cows extra clean; barn extra clean; ventilation good.

920—Nels Anderson, Chicago Avenue road; cows extra clean; barn extra clean; ventilation good.

6144—H. C. Hansen, Chicago Avenue road; cows extra clean; barn clean; ventilation fair.

1055—A. G. Carlson, Chicago Avenue road; cows extra clean and neat; barn extra clean and neat; ventilation fair.

A. C. Peterson, Chicago Avenue road; cows extra clean and neat; barn extra clean and neat; ventilation fair.

1097—J. C. Holleran, Cedar Lake road; cows extra clean; barn extra clean; ventilation good.

6039—Levander Bros., Cedar Lake road; cows clean; barn clean; ventilation good.

949—L. A. Engell, Cedar Lake road; cows extra clean; barn extra clean; ventilation good.

5095—E. W. Johnson, Cedar Lake road; cows extra clean; barn extra clean; ventilation good.

907—Stifen Olson, Cedar Lake road; cows extra clean; barn extra clean; ventilation poor.

2416—A. Bussee, Cedar Lake road; cows dirty; barn dirty; ventilation very poor.

2516—C. C. Fordice, 309 Buchanan St. Southeast; cows dirty; stable dirty; ventilation good.

C. E. Hall, Winter St. Southeast; cows dirty; barn dirty; ventilation good.

1016—H. J. Christianson, Como Ave.; cows extra clean; barn extra clean; ventilation good.

1070—John Peterson, Como Av.; cows extra clean; barn extra clean; ventilation good.

1007—Chris Peterson, near experimental farm; cows extra clean; barn clean; ventilation fair.

6047—G. Loftus, near Como Ave.; cows extra clean and neat; barn extra clean, neat and whitewashed; ventilation good.



1100—P. Hansen, near Como Ave.; cows clean; barn clean, ventilation good.

1096—S. Johnson, St. Louis Park road; cows clean; barn clean; ventilation good.

E. H. Weatherhead, St. Louis Park road; cows clean; barn clean; ventilation fair; wholesales to J. W. Hays.

J. J. Molstad, old motor line; cows clean; barn clean; ventilation good.

1008—L. H. Peterson, St. Louis Park road; cows extra clean; barn extra clean; ventilation good.

6083—Jens Hansen, Main St. Northeast; cows clean; barn clean; ventilation fair.

Peter Larson, Lake Amelia; cows clean; barn clean; ventilation good.

961—H. Thomsen, Cedar Avenue road; cows clean; barn clean; ventilation good.

5043—J. Christianson, Cedar Avenue road; cows dirty; barn fairly clean; ventilation poor.

5055—Nordgren & Larson, Forty-eighth St. and Bloomington Ave.; cows extra clean and very neat; barn extra clean, neat and well kept; a model dairy; ventilation good.

4088—R. C. Jansen, Forty-eighth St. and Bloomington Ave.; cows clean; barn clean; ventilation good.

1026—M. Rey, between Western Ave. and Cedar Lake road; cows extra clean; barn extra clean; ventilation good.

6161—Hans C. Johnson, Cedar Lake road; cows extra clean and very neat; barn extra clean, neat and well kept; stable fitted with Parker's patent sanitary system; ventilation good; milkhouse with running spring water; a model dairy.

C. D. Burnes, Minnetonka Mills; cows extra clean; barn clean; ventilation good.

Charles Carpenter, Minnetonka Mills; cows clean; barn clean; ventilation good; wholesales to Hays, 907 Nicollet Ave.

5007—C. A. Eckberg, Short Line bridge; cows fairly clean; barn fairly clean; ventilation poor.

6082—P. Peterson, Short Line bridge; cows fairly clean; barn fairly clean; ventilation good.

2558—Nodell & Son, Short Line bridge; cows extra clean; barn extra clean; ventilation good.

5011—Alexander & Sheppard, Short Line bridge; cows extra clean; barn extra clean; ventilation good.

61—Glennan & McGrew, near Short Line bridge; cows dirty and poorly tended; barn dark and dirty; ventilation fair.

William Johnson, Prospect Park; cows dirty; barn dirty; ventilation good.

4006—Nels S. Jepson, University Ave.; cows extra clean; barn extra clean; ventilation good.

7079—M. L. Griffin, Prospect Park; cows extra clean; barn extra clean; ventilation good.

6079—H. T. Sabin, 2800 Mary St. Southeast; cows fairly clean; barn clean; ventilation good.

988—Nels Hanson, Western Avenue road; cows fairly clean; barn fairly clean; ventilation good.

1034—Frank Moeser, between Cedar Lake and Western Avenue roads; cows extra clean; barn extra clean and neat; ventilation good.

7072—Peterson Bros., between Cedar Lake and Western Avenue roads; cows extra clean and neat; ventilation good.

6135—H. N. and J. N. Kroohn, Cedar Lake road; cows mostly dirty; barn clean; ventilation poor.

1632—D. D. Sullivan, Cedar Lake road; cows mostly dirty; barn fairly clean; ventilation poor.

934—Christ Sorenson, Cedar Lake road; cows extra clean and neat; barn extra clean; ventilation poor.



65—J. Olson, Cedar Lake road; cows extra clean and neat; barn extra clean; ventilation poor.

944—Anderson Bros., St. Louis Park; cows clean; barn clean; ventilation fair.

7092—C. A. Anderson, St. Louis Park; cows clean; barn clean; ventilation fair.

6050—A. Samuelson, St. Louis Park; cows clean; barn clean; ventilation good.

5032—Braden Bros., St. Louis Park; cows clean; barn clean; ventilation good.

1037—Schack Bros., Minnetonka Mills; cows clean; barn clean; ventilation fair.

961—Nelson & Baggenson, Minnetonka Mills; cows clean; barn clean; ventilation poor.

4160—Christ Jensen, Lake Amelia; cows clean; barn clean; ventilation poor.

970—Ewald Bros., Twenty-eighth Ave. and Forty-fifth St. South; cows extra clean; barn clean; ventilation good.

908—C. Nelson, Twenty-eighth Ave. and Forty-fifth St. South; cows mostly clean; barn clean; ventilation fair.

Thorndike & Molm, Lake Amelia; cows clean; barn clean; ventilation good; wholesales to Peter Johnson, 2004 Riverside avenue.

921—James Johnson, Lake Amelia; cows extra clean; barn extra clean; ventilation good.

1075—Hans Sorenson, Lake Amelia; cows extra clean; barn extra clean; ventilation good; no bad odors; stable fitted with Parker's patent sanitary system.

6055—John Peterson, 2800 Thirty-second Ave. South; cows fairly clean; barn clean; ventilation poor.

928—Ole Johnson, 2826 Thirty-second Ave. South; cows clean; barn clean; ventilation poor.

6101—G. A. Hanson, 2808 Thirty-first Ave. South; cows clean; barn clean; ventilation fair.

4193—P. Benson, Plymouth Ave.; cows dirty; barn fairly clean; ventilation poor.

Knute Nelson, Oak Park Addition; cows clean; barn clean; ventilation fair.

1069—J. E. Foss, Sixth Avenue road; cows clean; ventilation fair.

1029—Madson & Knudson, Western Avenue road; cows clean; barn clean; ventilation poor.

6083—K. C. Knudson, Sixth Avenue road; cows clean; barn clean; ventilation poor.

975—J. G. Lundin, Sixth Avenue road; cows clean; barn clean; ventilation good.

1117—P. Swenson, Sixth Avenue road; cows clean; barn extra clean and neat; ventilation good.

966—L. C. Nelson, Western Avenue road; cows extra clean and well bedded; barn extra clean; ventilation fair; good system of tying cattle.

1014—Hans C. Jensen, Twenty-second Avenue St.; cows extra clean and neat; barn extra clean; ventilation good.

6004—George Peterson, Twenty-second Ave. and Forty-second St. South; cows extra clean and neat; barn extra clean; ventilation good.

Ole Olson, Twenty-first Ave. and Forty-second St. South; cows clean; barn clean; good system of tying cattle.

1043—O. A. Nordberg, Twenty-first Ave. between Thirty-sixth and Thirty-seventh Sts.; cows fairly clean; barn fairly clean; ventilation poor.

7110—L. P. Skonnard, Nineteenth Ave. and Thirty-seventh St.; cows fairly clean; barn fairly clean; ventilation poor.

5072—Antone Jensen, Twenty-first Ave. and Thirty-sixth St. South; cows extra clean; barn extra clean; ventilation poor.

992—S. P. Finlason, Bloomfield; cows extra clean and well tended; barn extra clean; ventilation good.

1031—J. J. Lohse, Portland Avenue road; cows extra clean; barn extra clean; ventilation good.

965—J. L. Smith, Portland Avenue road; cows extra clean; barn extra clean; ventilation good.

904—Jensen & Nieman, Portland Avenue road; cows extra clean; barn extra clean; ventilation good.

5000—Christianson Bros., Portland Avenue road; cows extra clean and well tended; stable extra clean; ventilation good.

985—C. H. Garvey, Lyndale Avenue road; cows extra clean and well tended; barn extra clean and neat; ventilation good.

929—Johnson Bros., Lyndale Avenue road; cows fairly clean; barn fairly clean; ventilation fair.

963—J. L. Jenkins, Lyndale Avenue road; cows extra clean; barn extra clean; ventilation good.

William Ray & Sons, Lyndale Avenue road; cows extra clean; barn extra clean; ventilation good; wholesales to E. A. Hoyt.

J. D. Goodspeed, Lyndale avenue road; cows extra clean; barn extra clean; ventilation good; good system of tying cattle; wholesales to E. W. Cousins.

6075—Chas. Turnquist, Lyndale Avenue road; cows extra clean; barn clean; ventilation good.

7026—Andrew Johnson, 2732 Twenty-eighth St. South; cows clean; barn clean; ventilation poor.

82—Peterson & Matson, Lake St. and Thirty-fourth Ave. South; cows extra clean; barn extra clean; ventilation good.

967—A. J. Larson, 3320 Thirty-first St. South; cows clean; barn extra clean ventilation good.

1032—Chas. Syreen, 3119 Lake St. South; cows dirty; barn fairly clean; ventilation poor.

1088—Ole Young, 2922 Thirty-third Ave. South; cows mostly clean; barn clean; ventilation good.

5045—P. Swanson, 2821 Forty-second Ave. South; cows dirty; barn fairly clean; ventilation poor.

2204—A. G. Rosendahl, 2801 Forty-second Ave. South; cows mostly dirty; barn fairly clean; ventilation fair; good system of tying cattle.

1048—Chris. Neilson, Watertown road; cows mostly clean; barn fairly clean; ventilation poor.

4083—P. Neilson, Watertown road; cows mostly dirty; barn fairly clean; ventilation good.

2905—P. S. Miller, Watertown road; cows extra clean; barn extra clean; ventilation good.

2441—Nels L. Anderson, Watertown road; cows extra clean; barn extra clean; ventilation good.

2905—P. S. Miller, Watertown road; cows extra clean; barn extra clean; ventilation good.

2441—Nels L. Anderson, Watertown road; cows extra clean; barn extra clean; ventilation good.

4075—L. O. Larson, Watertown road; cows extra clean; barn extra clean; ventilation good.

6071—Wilho Reiman, Watertown road; cows fairly clean; barn fairly clean; ventilation good.

1127—J. Nelson, Watertown road; cows extra clean; barn extra clean; ventilation good.

968—C. Varner, Watertown road; cows extra clean; barn extra clean; ventilation good.

994—A. Anderson, Watertown road; cows extra clean; barn extra clean; ventilation good.

955—Jordan Bros., Watertown road; cows extra clean; barn extra clean; ventilation poor.

945—J. H. Miller, Minnetonka road; cows clean; barn clean; ventilation good.

989—David Luby, Watertown road; cows extra clean; barn extra clean; ventilation good.

2899—L. Pearson, Watertown road; cows clean; barn clean; ventilation good.

R. H. Davis, Portland Ave.; cows generally clean; barn clean; ventilation poor; wholesales to Northwestern Milk Company.

6123—O. A. Dean, Nicollet Avenue road; cows clean; barn clean; ventilation poor.

591—N. Erickson, Portland Avenue road; cows extra clean and very neat; barn extra clean, a model of cleanliness; ventilation good.

Alvis Glesner, Portland Avenue road; cows half clean and half dirty; barn clean; ventilation fair; wholesales to South Side Creamery.

933—Peterson & Ewald, Portland Avenue road; cows extra clean; barn extra clean; ventilation good.

956—A. J. Rosenthal, Fridley road; cows clean; barn clean; ventilation good.

917—Reldel & Nelson, Fridley road; cows extra clean and neat; barn extra clean, neat and whitewashed; ventilation good; no bad odors; running water in milkhouse.

419—C. C. Hayes, Fridley road; cows extra clean; barn extra clean; ventilation good.

954—H. Christianson, Fridley; cows extra clean and neat; barn clean; ventilation fair.

1102—S. Knudson, Fridley; cows clean; barn clean; ventilation good.

3040—H. G. Anderson, Minnehaha Ave.; cows clean; barn clean; ventilation good.

948—C. C. Anderson, Minnehaha Ave.; cows clean; barn clean; ventilation good.

Hansen & Nelson, Minnehaha Falls; cows clean; barn clean; ventilation good.

5029—L. M. Gamelgard, Fort road; cows fairly clean; barn clean; ventilation poor.

Elmer C. Wright, Fort road; cows extra clean; barn extra clean; ventilation good; sells at Fort Snelling.

W. H. Wright, Fort road; cows extra clean; barn extra clean; ventilation good; sells at Fort Snelling.

H. P. Hansen, Fort road; cows extra clean; barn extra clean and whitewashed; ventilation good.

923—Nelson & Hansen, Minnesota river; cows extra clean; barn extra clean; ventilation good.

1104—L. Drongeson, Twenty-fifth Ave. South road; cows clean; barn clean; ventilation good.

916—Larson Bros., Twenty-fifth Ave. South road; cows clean and neat; barn extra clean and neat; ventilation good.

998—Rasmusson Bros., Twenty-eighth Ave. South road; cows clean; barn clean; ventilation good.

6046—J. Bandholz, Twentieth Ave. South road; cows extra clean; barn extra clean; ventilation good.

1022—C. Rasmusson, Twentieth Ave. South road; cows clean; barn clean; ventilation good.

1061—Herbert Schuller, Rockford road; cows extra clean; barn extra clean; ventilation fair.

1019—Baumgardner Sons, Bass Lake road; cows extra clean; barn extra clean; ventilation fair.

5038—H. C. Pratt, Robbinsdale; cows mostly dirty; barn fairly clean; ventilation poor.

934—John Anderson, 2121 Third St. South; cows dirty; barn fairly clean; ventilation fair.

7059—John and Martin Halvorson, Riverside Ave.; cows dirty; ventilation poor.

1041—Aaron Johnson, Riverside, near Lake St.; cows about one-half clean; barn fairly clean; ventilation fair.

6014—A. B. Oradson, Riverside, near Lake St.; cows clean; barn clean; ventilation good.

2826—Peterson & Hanson, Riverside South; cows one-half clean, half dirty; barn fairly clean; ventilation good; good system of tying cattle.



987—H. P. Olson, Riverside South; cows mostly clean; barn clean; ventilation stopped up; good system of tying cattle.

924—A. Carlson, Lake St. South; cows clean; barn clean; ventilation good; good system of tying cattle.

1028—Paul Wind, Johnson road; cows extra clean; barn clean; ventilation fair.

1072—R. Hanson, Johnson road; cows extra clean; barn clean; ventilation poor.

993—P. O. Johnson, Johnson road; cows fairly clean; barn clean; ventilation fair.

1025—R. C. Moser, Johnson road; cows fairly clean; barn clean; ventilation poor.

1000—J. E. Row, Medicine Lake; cows mostly dirty; barn clean; ventilation poor.

1505—Erickson Bros., Medicine Lake road; cows clean; barn clean; ventilation good.

Minneapolis Dairy Company, McNair farm, Watertown road; cows mostly dirty; barn clean; ventilation poor.

894—Turner Bros., Watertown road; cows extra clean and well tended; barn extra clean, neat and dry; ventilation good; good system of tying cattle.

Beginning Aug. 1, 1894, and ending July 31, 1896, the number of samples of milk and cream taken from stores, wagons, and trains and submitted to the Babcock test were as follows:

Milk .....	2,375
Cream .....	139
Total .....	2,514

	1894.	1895.	1896.
Average per cent of fat in milk.....	3.535	3.765	3.90
Average per cent of fat in cream.....	16.125	18.43	21.185

While the above is an average of fat found in milk and cream, it is not uncommon at present to find milk taken from wagons testing from 5 to 6 per cent and cream testing from 25 to 29.50 per cent. The above shows that the state standard of fat in either milk or cream is none too high, and that a higher standard could be maintained by weeding out poor and worthless cows from dairies where quantity and not quality is the desired object.

The number of gallons of milk produced daily by dairies in the immediate vicinity of Minneapolis.....	11,718
Gallons received daily from trains.....	3,095
Gallons produced daily by private cows.....	2,000
Total gallons consumed daily in Minneapolis.....	16,813

#### FOOD INSPECTION.

In the inspection of foods that come under our state laws, we find the laws quite generally observed. Baking powder containing alum is in nearly all cases labeled according to law, but we find a disposition on the part of manufacturers to conceal the fact



by labeling cans in obscure places, such as the dark part of the label or printing over black lines, where it is hardly noticeable, and by using type not strictly according to law.

Lard is found to be sold for what it is. Compound is labeled according to law, and dealers have been made to observe the law requiring printed slips to be placed in package sold. We find the vinegar usually of a standard quality; but outside unscrupulous manufacturers still persist in sending illegal vinegars to this market under false pretenses, showing the dealer a certificate of purity from some chemist who has been furnished a prepared sample for the occasion.

We find very little filled cheese, the recent act of congress having put a check on the deception.

Honey at present is of good and legal quality generally, although samples are found occasionally where a piece of genuine comb honey is placed in a glass of glucose syrup, to deceive and effect a sale, the dealer being in all cases told that the article is genuine.

The following is a list of stores inspected, together with the number of samples of all kinds taken and submitted to the state chemist:

Number of stores inspected, 559.	52
Number of samples of lard taken.....	29
Number of samples of baking powder.....	21
Number of samples of cheese.....	27
Number of samples of honey.....	51
Number of samples of vinegar.....	
Total .....	180

Respectfully yours,

J. E. GETMAN,  
C. B. DAVIS,  
Inspectors.

## PART VI.

# REPORT OF THE DULUTH DEPARTMENT.

### Work Performed by Inspector A. Snyder.

To Hon. Berndt Anderson, Dairy and Food Commissioner,

Sir: Herewith please find a detailed report of the work assigned me, and which has been performed by myself since my appointment until July 31, 1896.

Respectfully submitted,

A. SNYDER,  
Inspector.

Number of samples of food taken, 241.

Vinegar samples taken.....	160
Baking powder samples taken.....	29
Cheese samples taken.....	16
Lard samples taken.....	16
Butter samples taken.....	5
Honey samples taken.....	8
Oleo samples taken.....	7
	<hr/>
	241

Number of milk samples taken, 552.

Percentage  
of Fat.

54	Samples taken in	May, 1895.....	4.03
46	"	" June, 1895.....	3.76
54	"	" July, 1895.....	3.74
29	"	" August, 1895.....	3.80
25	"	" September, 1895.....	3.55
47	"	" November, 1895.....	3.85
23	"	" January, 1896.....	3.97
31	"	" February, 1896.....	4.19
35	"	" April, 1896.....	3.58
39	"	" May, 1896.....	3.96
34	"	" June, 1896.....	3.81
58	"	" July, 1896.....	4.10
28	"	" August, 1896.....	3.96
26	"	" September, 1896.....	3.76
23	"	" October, 1896.....	3.90

## BARN INSPECTION IN DULUTH.

Commenced Jan. 13, 1896, by A. Snyder. Inspection completed Feb. 26, 1896. No. of barns inspected, 76; number of cows inspected, 860.

Carl Claus, 608 East Tenth St.—Twenty-four cows, in good condition; condition of barn good; ventilation poor; feeds wild hay, bran and shorts; well water.

P. A. Bolander, 601 East Eleventh St.—Sixteen cows, in good condition; condition of barn fair; ventilation fair; feeds wild hay, bran and ground feed; well water.

S. Johnson, 806 East Ninth St.—Nine cows, in good condition; condition of barn extra good; feeds wild hay, ground feed and bran; well water.

A. Pederson, 1011 West Fifth St.—Nineteen cows, in good condition; barn extra good; ventilation good; feeds wild hay, bran and shorts; well water.

Andrew Johnson, corner Sixth St. and Tenth Ave. West—Six cows, in good condition; barn in good condition; feeds wild hay and bran; creek water.

T. Johnson, 1106 West Fifth St.—Twenty-two cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, bran and shorts; spring water.

Mrs. C. McDonald, 1302 West Fifth St.—Twelve cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, corn and oats ground; spring water.

Chas. H. Hanson, 320 Eleventh Ave. West—Seven cows, in good condition; barn in good condition; good ventilation; feeds wild hay, corn and oats, oil meal and bran; spring water.

W. B. Blake, 707 West Fifth St.—Six cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, corn, oats and bran; spring water.

John Luxinn, 417 West Fifth St.—Three cows, in good condition; condition of barn good; feeds wild hay, bran and shorts; spring water.

Paul Bergson, 1008 East Ninth St.—Nine cows, in good condition; condition of barn fairly good; ventilation fairly good; feeds wild hay, corn and oats ground, and bran; well water.

Johan Einarsson, 1014 East Ninth St.—Nine cows, in extra good condition; barn and ventilation good; feeds wild hay, corn and oats ground, bran and oil meal; well and spring water.

T. Tomling, 1018 East Ninth St.—Sixteen cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay and bran; well and spring water.

J. G. Hagen, 1124 East Ninth St.—Ten cows, in good condition; barn in fairly good condition; ventilation fair; feeds wild hay, bran, corn meal and oil meal; well water.

L. Hrutford, 1219 East Seventh St.—Twelve cows, in extra good condition; barn and ventilation in fairly good condition; feeds wild hay, corn and oats ground, bran and middlings; well and spring water.

S. Magnuson, 1127 East Seventh St.—Six cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, ground feed, bran and oil meal; well water.

G. Nordal, 1225 East Seventh St.—Fifteen cows in good condition; barn and ventilation fairly good; feeds wild hay, corn and oats ground, bran and shorts; well and creek water.

Joe Giles, 1229 East Seventh St.—Four cows, in good condition; barn and ventilation good; feeds wild hay and bran; creek and well water.

Osket Peterson, 1017 East Ninth St.—Eight cows, in good condition; barn in good condition; ventilation good; feeds wild hay, corn and oats ground, and bran; well and creek water.

O. M. Anderson, 1028 East Tenth St.—Twelve cows, in good condition; barn in good condition; ventilation ordered in; feeds wild hay, bran and shorts and ground feed; well water.

G. Godmundson, 1015 East Tenth St.—Seventeen cows, extra good condition; barn extra good condition; ventilation good; feeds wild hay, bran, shorts and oil meal; spring water.

Thomas J. Dolman, 1032 East Eleventh St.—Eight cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; well water.

S. Stephenson—Eighteen cows, in good condition; barn in good condition; ventilation ordered in; feeds bran and middlings; well water.

O. R. Johnson—Eight cows, in good condition; barn fair condition; ventilation fair; feeds wild hay, bran and shorts; spring water.

S. Anderson, Sixteenth Ave. East and Eighth St.—Sixteen cows, in good condition; condition of barn good; ventilation fair; feeds wild hay, bran and shorts; spring water.

O. Kolstadt, Woodland Park—Ten cows, dirty; barn dirty; ventilation poor; ventilation ordered in barn; feeds wild hay, bran and shorts; well water.

Keough & Ryan, Hunter's Park—Nineteen cows, in extra good condition; barn in extra good condition; ventilation very good; feeds wild and tame hay, corn and oats ground, and barley and bran; spring water.

Gould Brothers, Thirty-third Ave. East and Center St.—Twenty-one cows, in extra good condition; barn in good condition; ventilation good; feeds wild hay, bran, shorts, malt and roots; lake water.

Egard & Son, Thirty-third Ave. East and Fifth St.—Nineteen cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; spring water.

G. W. Berglate, Halet Farm—Thirty cows, in good condition; barn in good condition; ventilation good; feeds wild hay, corn and oats ground, bran and oil meal; spring water.

Dave Anderson, Sixteenth St. and Eighth Ave. East—Fourteen cows, in good condition; barn in fair condition; ventilation good; feeds wild hay, bran, shorts, corn meal and oil meal; spring water.

John Urban, Highland Park—Fourteen cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; creek water.

John Propp, Ninth St. and Eleventh Ave. West—Twelve cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran, shorts and oil meal; well water.

John Epple, Eleventh St. and Twelfth Ave. West—Twelve cows, in good condition; condition of barn and ventilation good; feeds wild hay, bran, shorts and oil meal; spring water.

Peter Grant, Lexting dairy, section 8, township 50, range 14—Nineteen cows, in good condition; barn in good condition; ventilation good; feeds timothy and clover hay, bran, shorts and oil meal; creek water.

Thomas Holder, section 10, township 50, range 14—Six cows, in good condition; barn and ventilation in good condition; feeds wild hay, bran and oil meal; well water.

Fred Sick, Oakland Park—Ten cows, in good condition; barn in extra good condition; ventilation extra good; feeds wild hay, bran and oil meal; creek and spring water: cows fastened with stanchion of latest patent.

John Cameron, Oakland Park—Seven cows, in good condition; barn in good condition; ventilation good; feeds wild and timothy hay, bran and shorts; creek and spring water.

Fred Peterson, Forbs and Lake Side—Twenty-four cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; lake water.

John Wallen, 2117 Piedmont Ave.—Three cows, in good condition; barn and ventilation in good condition; feeds wild hay, bran and shorts; creek and spring water.

Swan Anderson, 2119 Piedmont Ave.—Four cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; spring water.

Tam Otterson, corner Twenty-second Ave. West and Piedmont—Six cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts and roots; spring water.



C. O. Bergstason, 22 Henson's Division—Nine cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; well water.

Peter Grytdahl, Twenty-eighth Ave. West and Third St. West—Eight cows, in good condition; barn fairly good; ventilation fairly good; feeds wild hay, bran and shorts; creek water.

August Anderson, 2213 West Second St.—Six cows, in good condition; barn in good condition; ventilation good, feeds wild hay, bran and shorts; well water.

John Oleson, Twenty-third Ave. West and Sixth St.—Five cows, in good condition; barn in good condition; ventilation poor; feeds wild hay, bran and shorts; creek water.

M. C. Ryan, 2723 Railroad St. West—Three cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, bran and shorts; well water.

Lafayette Stanton, 2921 Railroad St. West—Eight cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; river water.

Oleo Anderson, Coffin's Addition to Duluth—Fifteen cows, in good condition; barn in extra good condition; ventilation extra good; feeds millet, seed meal, corn and oats ground, bran and shorts and oil meal; well water.

S. Peterson, Coffin's Addition to Duluth—Twelve cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; spring water.

Peter Hanson, Herman Town, section 30, township 50, range 14—Twenty-three cows, in good condition; barn in good condition; ventilation good; feeds wild and tame hay, bran and shorts and cut feed steamed; creek water.

N. S. Stalker, Herman Town—Six cows, in good condition; barn in good condition; ventilation poor; ventilation ordered in barn; feeds tame hay, bran and shorts; well water.

O. P. Wick, Sixty-first Ave. West and State St.—Eleven cows, in good condition; ventilation good; barn in good condition; feeds wild hay and shorts; spring water.

Lewis Winnes, Sixty-first Ave. West and Highland St.—Eleven cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; spring water.

Elick Rost, Sixty-first Ave. West—Five cows, in fairly good condition; barn in good condition; ventilation good; feeds wild hay and shorts; spring water.

C. B. Oleson, Sixty-fifth Ave. West and Highland St.—Ten cows, in good condition; ventilation good; barn in good condition; feeds wild hay and shorts; spring water.

J. H. Cugin, Sixty-sixth Ave. West—Six cows, in very poor condition; barn in dirty condition; feeds wild hay and shorts.

Christ Gunnerson, Sixty-fourth Ave. West—Five cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; creek water.

R. P. Mahlam, Sixty-fourth Ave. West and Gusta St.—Six cows, in good condition; barn and ventilation in good condition; feeds wild hay, bran and shorts; creek water.

A. H. Wallace, Sixty-ninth Ave. West—Twenty-two cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; spring water.

S. C. Ousgard, Seventieth Ave. West—Eight cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; creek water.

C. C. Ousgard, Seventy-first Ave. West—Seven cows, in good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; creek water.

Ole Trenstrom—Fifteen cows, in good condition; barn and ventilation in good condition; feeds wild hay, bran and shorts; well water.

Peter Thurson, Sixty-sixth Ave. West and Freemont St.—Five cows, in good condition; barn in good condition; ventilation good; feeds wild hay and shorts; well water.

Erick Paulson, Forty-eighth Ave. West—Seven cows, in good condition; condition of barn good; ventilation good; feeds wild hay and shorts; spring water.

A. P. Carlson, Forty-sixth Ave. West—Seven cows, in fairly good condition; barn in good condition; ventilation good; feeds wild hay, bran and shorts; spring water.

Ax Johnson, Forty-first Ave. West—Eight cows, in good condition; ventilation and barn in good condition; feeds wild hay, bran and shorts.

Richard Hodgeson, Lester Park—Twenty-two cows, in extra good condition; barn in good condition; ventilation extra good; feeds wild hay, bran and shorts; lake water.

John Harris, Duluth Heights—Four cows, in extra good condition; barn in good condition; ventilation good; feeds wild hay, corn and oats ground, and bran; spring water.

Bertha Contre, Biwabic, Minn.—Fifteen cows, in fairly good condition; barn in dirty condition; ventilation bad; feeds wild hay, bran and shorts; well water.

Jerome Galeozzi, Biwabic, Minn.—Four cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, bran and shorts; city water.

G. Vactr, Biwabik, Minn.—Thirteen cows, in fairly good condition, barn dirty; ventilation poor; feeds wild hay, bran and shorts; creek water.

Herman Larson, Virginia, Minn.—Eighteen cows, in good condition; barn fairly good; ventilation good; feeds wild hay, bran and shorts; well water.

George Rankila, Virginia, Minn.—Six cows, in good condition; barn fairly good; ventilation good; feeds wild hay, bran and shorts; well water.

John Peterson, Virginia, Minn.—Seven cows, in good condition; barn in good condition; ventilation fairly good; feeds wild hay, bran and shorts; well water.

E. Driger, Virginia, Minn.—Twenty-four cows, in good condition; barn in good condition; feeds wild hay, bran and shorts; lake water.

## PART VII.

## DAIRY AND FOOD LAWS

OF THE

STATE OF MINNESOTA.

## DAIRY PRODUCTS.

## CHAPTER 247, GENERAL LAWS OF 1889.

AN ACT TO AMEND CHAPTER 140, AN ACT TO PREVENT DECEPTION IN THE SALE OF DAIRY PRODUCTS, AND TO PRESERVE THE PUBLIC HEALTH; BEING SUPPLEMENTARY TO AND IN AID OF CHAPTER 149 OF THE LAWS OF 1885, ENTITLED "AN ACT TO PROHIBIT AND PREVENT THE SALE OR MANUFACTURE OF UNHEALTHY OR ADULTERATED DAIRY PRODUCTS."

Section 1. That chapter 140 of the General Laws of Minnesota for the year 1887 be and the same is hereby amended so as to read as follows:

Section 1. No person or persons shall sell or exchange or expose for sale or exchange any unclean, unhealthy, adulterated or unwholesome milk, or shall offer for sale any article of food made from the same, or of cream from the same. This provision shall not apply to pure skim milk cheese made from milk which is pure, healthy, wholesome and unadulterated, except by skimming. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor and shall be punished by a fine of not less than ten dollars nor more than one hundred dollars, or by imprisonment of not less than one month or more than three months; or both such fine and imprisonment for the first offense, and by three months' imprisonment for each subsequent offense.

Section two of said act is hereby amended so as to read as follows:

Sec. 2. No person shall keep cows for the production of milk for market, or for sale or exchange, or for manufacturing the same, or cream from the same, into articles of food, in a crowded or unhealthy condition, or feed the cows on food that is unhealthy or that produces impure, unhealthy, diseased or unwholesome milk. No person shall manufacture from impure, unhealthy, diseased or unwholesome milk, or of cream from the same, any article of food. Whoever violates the provisions of this section is guilty of a misdemeanor, and shall be punished by a fine of not less than ten dollars nor more than \$100, or by imprisonment of not less than one month or more than three months, or by both such fine or imprisonment for the first offense, and by three months' imprisonment for each subsequent offense.



Section three of this act is hereby amended to read as follows:

Sec. 3. No person or persons shall sell, supply, or bring to be manufactured, to any butter or cheese manufactory, any milk diluted with water, or any unclean, impure, unhealthy, adulterated or unwholesome milk, or milk from which any cream has been taken (except pure skim milk to skim cheese factories), or shall keep back any part of the milk commonly known as "strip-pings," or shall bring or supply milk to any butter or cheese manufactory that is sour (except pure skim milk to skim cheese factories). No butter or cheese manufactories, except those who buy all the milk they use, shall use for their own benefit or allow any of their employes or any other person to use, or the product thereof brought to said manufacturers, without the consent of the owners thereof. Every butter or cheese manufacturer, except those who buy all the milk they use, shall keep a correct account of all the milk daily received, and of the number of pounds and packages of butter, the number and aggregate weight of cheese made each day, the number of packages of cheese and butter disposed of; which shall be open to inspection to any person who delivers milk to such manufacturer. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and shall be punished for each offense by a fine of not less than ten dollars or more than \$100, or not less than one month or more than three months' imprisonment, or by both such fine and imprisonment.

Section four of said act is amended so as to read as follows:

Sec. 4. No person shall manufacture out of any oleaginous substance or substances, or any compound of the same, or any other compound, other than that produced from unadulterated milk or of cream from the same, any article designed to take the place of butter or cheese, produced from pure, unadulterated milk or cream from the same, or shall sell or offer for sale the same as an article of food. This shall not apply to pure skim milk cheese made from pure skim milk. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor and be punished by a fine of not less than \$100 or more than \$500, or not less than six months' or more than one year's imprisonment, or by both such fine and imprisonment for the first offense, and by imprisonment for one year for each subsequent offense.

Section five of said act is hereby amended so as to read as follows:

Sec. 5. No person, by himself or his agents or servants, shall render or manufacture out of any animal fat, or animal or vegetable oils not produced from unadulterated milk or cream from the same, any article or product in imitation or semblance of or designed to take the place of natural butter or cheese produced from pure unadulterated milk or cream of the same, nor shall he or they mix, compound with or add to milk, cream or butter any acids or other deleterious substance or any animal fats or animal or vegetable oils not produced from milk or cream with designs or interest to render, make or produce any article or substance for human food in imitation or semblance of natural butter or cheese, nor shall he sell, keep for sale or offer for sale any article, substance or compound made, manufactured or produced in violation of the provisions of this section, whether such article, substance or compound shall be made or produced in this state or in any other state or country. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and be punished by a fine of not less than \$100 nor more than \$500, nor less than six months' or more than one year's imprisonment for the first offense, and by imprisonment for one year for each subsequent offense.

Nothing in this section shall impair the provisions of section four of this act.

Section six of said act is hereby amended so as to read as follows:

Sec. 6. No person shall manufacture, mix or compound with or add to natural milk, cream or butter any animal fats or animal or vegetable oils, nor shall he make or manufacture any oleaginous substances not produced from milk or cream with intent to sell the same for butter or cheese made from unadulterated milk or cream, or have the same in his possession, or offer the same for sale with such intent, nor shall any article or substance or compound so made or produced be sold for butter or cheese, the product of the dairy. If any person shall coat, powder or color with annatto or any coloring matter whatever, butterine or oleomargarine or any compounds of the



same, or any products or manufacture made in whole or in part from animal fats, or animal or vegetable oils not produced from unadulterated milk or cream, whereby the said product, manufacture or compound shall be made to resemble butter or cheese, the product of the dairy, or shall have the same in his possession, or sell or offer for sale, or have in his possession any of said products which shall be coated or colored in semblance of or to resemble butter or cheese, it shall be *prima facie* evidence of an intent to sell the same for butter or cheese, the product of the dairy. Whoever violates any of the provisions of this section shall be deemed guilty of misdemeanor and punished by a fine of not less than \$100 nor more than \$1,000.

This section shall not be construed to impair or affect the prohibition of sections four and five of this act.

Section seven of said act is hereby amended so as to read as follows:

Sec. 7. No person shall offer, sell or expose for sale, butter or cheese branded or labeled with a false brand or label as to the quality of the article, or to the county or state in which the article is made.

The Minnesota state dairy and food commissioner is hereby authorized and directed to procure and issue to the cheese manufacturers of the state, upon proper application therefor, and under such regulations as to the custody and use thereof as he may prescribe, a uniform stencil brand bearing a suitable device or motto and the words "Minnesota State Full Cream Cheese." Every brand issued shall be used upon the outside of the cheese, and also upon the package containing the same, and shall be a different number for each separate manufactory, and the commissioner shall keep a book in which shall be registered the name, location and number of each manufactory using the said brand, and the name or names of the persons at each manufactory authorized to use the same.

It shall be unlawful to use or permit such stencil brand to be used upon any other than full cream cheese, or packages containing the same. Minnesota state full cream cheese, of which there be less than forty per centum of fats to total solids, shall be deemed, for the purpose of this act, to be adulterated. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and for each and every cheese or package so falsely branded shall be punished by a fine of not less than twenty-five dollars or more than fifty dollars, or imprisonment of not less than fifteen days or more than thirty days.

Section eight of said act is hereby amended so as to read as follows:

Sec. 8. The governor shall appoint a commissioner, who shall be known as the state dairy and food commissioner, who shall be a citizen of this state, and who shall hold his office for a term of two years, or until his successor is appointed, and shall receive a salary of \$1,800 per annum, and his necessary expenses incurred in the discharge of his duties under this act, and shall be charged under the direction of the governor, with the enforcement of the various provisions thereof. Said commissioner may be removed from office at the pleasure of the governor, and his successor appointed as above provided for. The said commissioner is hereby authorized and empowered to appoint a secretary, whose salary shall be \$1,200 per year, and such assistant commissioners, and to employ such experts, chemists, agents and such counsel as may be deemed by him necessary for the proper enforcement of this law, their compensation to be fixed by the commissioner. The sum of \$15,000 annually is hereby appropriated, to be paid for such purposes out of any moneys in the treasury not otherwise appropriated. All charges, accounts and expenses authorized by this act shall be paid by the treasurer of the state upon the warrant of the state auditor. The entire expenses of said commissioner shall not exceed the sum appropriated for the purpose of this act. The said commissioner shall make biennial reports to the legislature, not later than the fifteenth day of January, of his work and proceedings, and shall report in detail the number of assistant commissioners, experts, chemists, agents and counsel he has employed, with their expenses and disbursements. The said commissioner shall have a room in the capitol, to be set apart for his use by the governor. This section shall not effect the tenure of office of the present commissioner, nor to be construed to impair or affect any of the provisions in section 7 of chapter 149 of the law of 1885, except in the sum of money appropriated.

Sec. 9. The said commissioner and assistant commissioners, and such experts, chemists, agents and counsel as they shall duly authorize for the purpose, shall have access, ingress and egress to all places of business, factories, farms, buildings, carriages, cars, vessels and cans used in the manufacture and sale of any dairy product or any imitation thereof. They also shall have power and authority to open any package, can or vessel containing such articles which may be manufactured, sold or exposed for sale, in violation of the provisions of this act, and may inspect the contents therein, and may take samples therefrom for analysis.

All clerks, bookkeepers, express agents, railroad officials, employes or common carriers shall render to them all the assistance in their power, when so requested, in tracing, finding or discovering the presence of any prohibited article named in this act.

Any refusal or neglect on the part of such clerks, bookkeepers, express agents, railroad officials, employes or common carriers to render such friendly aid shall be deemed a misdemeanor, and be punished by a fine of not less than fifty dollars nor more than \$100 for each and every offense.

Sec. 10. The commissioner shall provide blanks, which shall be furnished to all proprietors or managers of creameries, cheese factories or milk dairies that ship milk to the cities, and all the venders or peddlers of milk in the cities, within the state, for the purpose of making a report of the amount of milk and dairy goods handled, and all owners or managers of such creameries and cheese factories shall, on the first day of November of each year, send to the dairy and food commissioner a full and accurate report of the amount of business done during the year, and all milk dairies, milk venders or milk peddlers shall send to the state dairy and food commissioner quarterly reports of all the business done by each and every such person, firm or company in handling dairy products during the last three months past, as designated under the different headings of such printed blanks.

Any neglect or failure, or false statement on the part of any proprietor or manager of such creamery, cheese factory, dairy or any milk vender or milk peddler shall be considered guilty of a misdemeanor, and be punished by a fine of not less than ten dollars nor more than \$100.

Section eleven of said act is hereby amended so as to read as follows:

Sec. 11. No person shall sell or offer for sale any cream taken from impure or diseased milk, or cream that contains less than twenty per centum of fat. Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than ten dollars nor more than \$100.

Section twelve of said act is hereby amended so as to read as follows:

Sec. 12. In all prosecutions under this act relating to the sale and manufacture of unclean, impure, unhealthy, adulterated or unwholesome milk, if the milk be shown to contain more than eighty-seven per centum of water fluids or less than thirteen per centum milk solids, of which less than three and one-half per centum shall be fat, shall be declared adulterated, and milk drawn from cows within fifteen days before and four days after parturition, or from animals fed on distillery waste or brewers' malt, or any unhealthy food whatever, shall be deemed, for the purpose of this act, to be unclean, impure, unhealthy and unwholesome milk. The penalties for any violation of this section are the same as those of section two of this act. This section shall not prevent the feeding of ensilage from silos.

No person shall sell or expose for sale in any store or place of business or on any wagon or other vehicle used in transporting or selling milk from which cream has been removed, or milk commonly called "skimmed milk," without first marking the can or package containing said milk with the words "skimmed milk" in large, plain, black letters, each letter being at least one inch high and one-half inch wide. Said words to be on the top or side of said can or package, where they can be easily seen.

Whoever violates the provisions of this section shall be deemed guilty of a misdemeanor and shall be punished by a fine of not less than twenty-five nor more than \$100 for each and every offense.

Sec. 13. Every person who conveys milk in carriages, carts or otherwise for the purpose of selling the same in any city or town of 2,000 inhabitants or more, in the State of Minnesota, shall annually, on the first day of May,



or within thirty days thereafter, be licensed by the state dairy and food commissioner to sell milk within the limits of said city or town, and shall pay to the said dairy and food commissioner the sum of one dollar each to the use of said dairy and food commission.

Licenses shall be issued only in the names of the owners of carriages, carts or other vehicles, and shall, for the purpose of this act, be conclusive evidence of ownership. No license shall be sold, assigned or transferred. Each license shall record the name, residence, place of business, number of carriages, carts or other vehicles used, the name and residence of every driver, or other person engaged in selling said milk, and the number of the license. Each licensee shall, before engaging in the sale of milk, cause his name, the number of his license and his place of business to be legibly placed on each outer side of all carriages, carts or other vehicles used by him in the conveyance and sale of milk, and he shall report to the state dairy and food commissioner any change of driver or other person employed by him, which may occur during the term of his license. Whoever, without being first licensed under the provisions of this section, sells milk, or exposes it for sale from carriages, carts or other vehicles, or has it in his custody or possession with intent to sell, and whoever violates any of the provisions of this section, shall for the first offense, be punished by a fine of not less than ten dollars nor more than fifty dollars. For a second offense by fine of not less than fifty dollars nor more than \$160, and for a subsequent offense by fine of fifty dollars and imprisonment in the county jail for not less than thirty nor more than sixty days.

Sec. 14. Every person, before selling milk, or offering it for sale in a store, booth, stand or market place, in the respective towns or cities, as designated in this act, shall procure a license from the state dairy and food commissioner, or his authorized agents, and shall pay to said commissioner or his agents the sum of one dollar. And whoever neglects to procure said license shall be deemed guilty of a misdemeanor and shall be punished for each offense by a fine not exceeding twenty-five dollars.

Sec. 15. That all moneys received as license fees, or from the sale of any and all goods confiscated by the state dairy and food commissioner, under said act, shall be received and disbursed the same as money appropriated for the use of said dairy and food commission.

Sec. 16. The having in possession by any person or firm of any article or substances prohibited by this act, shall be considered *prima facie* evidence that the same is kept by such person or firm in violation of the provisions of this act, and the commissioner shall be authorized to seize upon and take possession of such articles or substances, and upon the order of any court which has jurisdiction under this act, he shall sell the same for any purpose other than to be used for food, the proceeds to be placed to the credit of the state dairy and food commissioners' fund.

Section seventeen of said act is hereby amended so as to read as follows:

Sec. 17. The district and municipal courts and all justices of the peace of this state shall have jurisdiction of all cases arising under this act, and their jurisdiction is hereby extended so as to enable them to enforce the penalties imposed by any or all the sections hereof.

Section eighteen of said act is hereby amended so as to read as follows:

Sec. 18. In all prosecutions under this act the cost thereof shall be paid in the manner now provided by law, and the rest placed to the credit of the state dairy and food commissioners' fund.

Sec. 19. All acts and parts of acts now in force and inconsistent with this act are hereby repealed.

Approved April 20, 1889.

## CHAPTER 11, GENERAL LAWS OF 1891.

### AN ACT RELATING TO THE SALE OF IMITATION BUTTER.

Section 1. Whoever, by himself or his agent, shall sell, expose for sale, or have in his possession with intent to sell, any article or compound made in imitation of butter or as a substitute for butter, and not wholly made from

milk or cream, and that is of any other color than bright pink, shall be subject to the payment of a penalty of fifty dollars, and for a second and each subsequent offense, a penalty of \$100, to be recovered with costs in any court in this state of competent jurisdiction.

Sec. 2. Samples or specimens of any articles in imitation of butter, suspected of being of a spurious character, shall be analyzed or otherwise satisfactorily tested as to color and compounds; and a certificate of the analysis, sworn to by the analyzer, shall be admissible as evidence in all prosecutions under this act.

Sec. 3. The having in possession by any person or firm of any articles or substance prohibited by this act shall be considered *prima facie* evidence that the same is kept by such person or firm in violation of the provisions of this act, and the state dairy and food commissioner shall be authorized to seize upon and take possession of such articles or substance, and upon the order of any court which has jurisdiction under this act, he shall sell the same for any purpose other than to be used for food; the proceeds derived from fines and the sale of imitation butter shall be paid into the state treasury to be placed to the credit of the state dairy and food commissioners' fund.

Sec. 4. For the purpose of this act the term butter shall be understood to mean the product usually known by that name, and which is manufactured exclusively from milk or cream, or both.

Approved April 21, 1891.

## FOOD LAWS.

### CHAPTER 12, GENERAL LAWS OF 1891.

AN ACT IN RELATION TO THE MANUFACTURE AND SALE OF LARD AND OF LARD COMPOUNDS AND SUBSTITUTES, AND OF FOOD PREPARED THEREFROM, TO PREVENT FRAUD AND TO PRESERVE THE PUBLIC HEALTH.

Section 1. No person shall within this state manufacture for sale, have in his possession with intent to sell, offer or expose for sale, or sell, as lard, any substance not the legitimate and exclusive product of the fat of the hog.

Sec. 2. Every person who manufactures for sale within this state, has in his possession with intent to sell, offers or exposes for sale, or sells, as lard, or as a substitute for lard, or an imitation of lard, any mixture or compound which is designed to take the place of lard and which is made from animal or vegetable oils or fats, or any mixture or compound consisting of part of lard in mixture or combination with animal or vegetable oils or fats, unless the same shall be branded or labeled as hereinafter required and directed shall be guilty of a misdemeanor, and shall upon conviction be subject to the penalties hereinafter provided in this act.

Sec. 3. Every person who manufactures for sale, has in his possession with intent to sell, offers or exposes for sale or sells, any substance made in the semblance of lard, and which is designed to take the place of lard, and which consists of any mixture or compound of animal or vegetable oils or fats other than hog fat in the form of lard, shall cause the tierce, barrel, tub, pail or package containing the same to be distinctly and legibly branded or labeled in letters not less than one inch in length with the name of the person or firm making the same, together with the location of the manufactory, and the words "Lard Substitute," and immediately following the same in letters not less than one-half inch in length, with the names and approximate proportions of the several constituents which are contained in the mixture or compound.

Sec. 4. Every person who manufactures for sale, has in his possession with intent to sell, offers or exposes for sale or sells, any substitute made in the semblance of lard, or as an imitation of lard, or as a substitute for lard, and which is designed to take the place of lard, and which consists of any mixture or compound of lard with animal or vegetable oils or fats, shall



cause the tierce, barrel, tub, pail or package containing the same to be distinctly and legibly branded or labeled in letters not less than one inch in length, with the name of the person or firm making the same, together with the location of the manufactory, and the words "Adulterated Lard," and immediately following the same in letters not less than one-half inch in length with the names and approximate proportions of the several constituents which are contained in the mixture or compound.

Sec. 5. Every dealer or trader who, by himself or his agent, or as the servant or agent of another person, offers or exposes for sale or sells any form of lard substitute or adulterated lard as hereinbefore defined, shall securely affix or cause to be affixed to the package wherein the same is contained, offered for sale or sold, a label, upon the outside and face of which is distinctly and legibly printed in letters not less than one-half inch in length, the words "Lard Substitute" or "Adulterated Lard," and immediately following the same, in letters not smaller than long primer, the name and approximate proportions of the several constituents which are contained in the mixture or compound, and shall furnish to the purchaser at the time of sale a card upon which is distinctly and legibly printed the name of the article as hereinbefore defined, and a list of the several components of the mixture.

Sec. 6. Every person who manufactures for sale, or who offers or exposes for sale or sells, or who serves to guests as keeper of hotel, restaurant, dining-room, or in any other capacity, articles of food which have been prepared, either wholly or in part, with lard substitutes, or adulterated lard as hereinbefore defined, shall at the time of sale furnish to the purchaser a card upon which is distinctly and legibly printed the words, "This food is prepared with lard substitute (or adulterated lard)." or in case no bill of fare is provided, there shall be kept constantly posted upon each of the sides of the dining-room, in a conspicuous position, cards upon the face of which is distinctly and legibly printed in the English language, and in letters of sufficient size to be visible from all parts of the room the words, "Lard Substitute (or adulterated lard) is used in the preparation of the food served here."

Sec. 7. The having in possession of any lard substitute or adulterated lard, as hereinbefore defined, which is not branded or labeled as hereinbefore required and directed, upon the part of any dealer or trader, keeper of hotel, restaurant, bakery, or any person engaged in the public sale of such articles or of food prepared therefrom, shall for the purpose of this act be deemed *prima facie* evidence of intent to sell the same or to use the same in an illegal manner.

Sec. 8. The district and municipal courts and justices of the peace of this state shall have jurisdiction of all cases arising under this act, and their jurisdiction is hereby extended so as to enable them to enforce the penalties imposed by this act.

Sec. 9. It shall be the duty of the state dairy and food commissioner and his assistants, experts, chemists and agents by him appointed, to enforce the provisions of this act. The said commissioner is hereby authorized and empowered to employ such experts and chemists as may be deemed by him necessary for the proper enforcement of the law; their compensation to be fixed by the commissioner. All charges, accounts and expenses authorized by this act shall be paid by the state treasurer upon a warrant drawn by the state auditor.

Sec. 10. The said commissioner and assistant commissioners, experts, chemists, and others by him appointed, shall have access, ingress and egress to all places of business, factories and buildings where the same is manufactured or kept for sale; they shall also have power and authority to open any package, car or vessel containing such articles which may be manufactured, sold or exposed for sale in violation of the provisions of this act, and may inspect the contents therein and take samples therefrom for analysis. All clerks, bookkeepers, express agents, railroad officials, employes or common carriers, shall render them all the assistance in their power, when so requested, in tracing, finding or discovering the presence of any prohibited article named in this act. Any refusal or neglect on the part of such clerk, bookkeeper, express agent, railroad officials, employes or common carriers

to render such friendly aid, shall be deemed a misdemeanor and be punished by a fine of not less than twenty-five dollars nor more than fifty dollars for each and every offense.

Provided, however, that the provisions of this act shall not apply to cottolene, a compound consisting of a mixture of beef stearine and refined cotton seed oil, where the tierce, barrel, tub, pail or package containing the same shall be distinctly and legibly branded or labeled in letters not less than one-half inch in length, with the word "cottolene" and the name and location of the person or firm manufacturing the same, and, provided further, that said cottolene shall not be manufactured in imitation of lard and shall not contain any substance deleterious to health.

Sec. 11. In all prosecutions under this act, the costs thereof shall be paid in the manner now provided by law, and such fine shall be paid into the state treasury, and placed to the credit of the state dairy and food commissioner's fund.

Sec. 12. Any person violating any of the provisions of this act shall be deemed to be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars or more than one hundred dollars and costs for each offense, or by imprisonment in the county jail for not less than thirty days or more than ninety days.

Sec. 13. All acts and parts of acts inconsistent with this act are hereby repealed.

Approved April 20, 1891.

#### CHAPTER 119, GENERAL LAWS OF 1891.

AN ACT TO AMEND CHAPTER 7 OF THE GENERAL LAWS OF 1889, AN ACT ENTITLED "AN ACT IN RELATION TO THE MANUFACTURE AND SALE OF BAKING POWDERS, SUGARS AND SYRUPS, VINEGARS, LARD, SPIRITUOUS AND MALT LIQUORS, TO PREVENT FRAUD AND TO PRESERVE THE PUBLIC HEALTH."

Section 1. Every person who manufactures for sale within this state, or offers or exposes for sale, or sells any baking powder, or any mixture or compound intended for use as a baking powder, under any name or title whatsoever, which shall contain, as may appear by the proper tests, any alum, in any form or shape, unless the same be labeled, as hereinafter required and directed, shall be deemed guilty of a misdemeanor, and upon conviction, shall, for each offense, be punished by a fine not less than twenty-five or more than one hundred dollars and costs, or by imprisonment in the county jail not exceeding thirty days.

Sec. 2. Each person making or manufacturing baking powder, or any mixture or compound intended for use as a baking powder, which contains alum in any form or shape, shall securely affix, or cause to be securely affixed, to every box, can or package containing such baking powder or like mixture or compound, a label, upon the outside and face of which is distinctly printed in legible type, no smaller than "brevier heavy Gothic caps," the name and residence of the manufacturer, and the following words: "This Baking Powder contains Alum." Any person violating the provisions of this section, shall be deemed guilty of a misdemeanor, and shall, for each offense, be punished by a fine not less than twenty-five or more than one hundred dollars and costs, or by imprisonment in the county jail not to exceed thirty days.

Sec. 3. The having in possession by any person or firm, of any of the articles or substances hereinbefore described, and not labeled, as provided by section two of this act, shall be considered *prima facie* evidence that the same is kept by such person or firm in violation of the provisions of this act, and the state dairy and food commissioner, his assistants, experts and chemists, or any one thereof, are hereby authorized to seize upon and take possession of such articles or substances, and upon the order of any court which has jurisdiction under this act, he shall sell the same, giving full notice of the time of such sale, and of the fact that such compound or substances contain alum, and the proceeds of such sale shall be placed to the credit of the state dairy and food commissioner's fund.



Sec. 4. The district and municipal courts and justices of the peace of this state, shall have jurisdiction of all cases arising under this act, and their jurisdiction is hereby extended so as to enable them to enforce penalties imposed by any or all of the sections hereof.

Sec. 5. In all prosecutions under this act, the costs thereof shall be paid in the manner now provided by law, and such fine shall be placed to the credit of the state dairy and food commissioner's fund.

Sec. 8. Every person who manufactures for sale, or offers or exposes for sale as cider vinegar, any vinegar not the legitimate product of pure apple juice, known as apple cider, or vinegar not made exclusively of said apple cider, or vinegar into which foreign substances, drugs or acids have been introduced, as may appear by proper tests, shall be deemed guilty of a misdemeanor, and for each offense be punished by a fine of not less than twenty-five or more than one hundred dollars and costs.

Sec. 9. Every person who manufactures for sale or offers for sale any vinegar, found upon proper tests to contain any preparation of lead, copper, sulphuric acid, or other ingredient injurious to health, shall be deemed guilty of a misdemeanor, and for such offense shall be punished by a fine of not less than ten dollars nor more than one hundred dollars and costs.

Sec. 10. No person, by himself, his servant or agent, or as the servant or agent of any other person, shall sell, exchange, deliver or have in his custody or possession, with intent to sell or exchange, or expose or offer for sale or exchange, any adulterated vinegar, or label, brand or sell as cider vinegar, or as apple vinegar, any vinegar not the legitimate product of pure apple juice, or not made exclusively from apple cider.

Sec. 11. All vinegar shall have an acidity equivalent to the presence of not less than four and one-half per cent by weight of absolute acetic acid, and in case of cider vinegar shall contain in addition not less than two per cent by weight of cider vinegar solids upon full evaporation over boiling water, and if any vinegar contains any artificial coloring matter, or less than the above acidity, or, in the case of cider vinegar, if it contains less than the above amount of acidity or of cider vinegar solids, it shall be deemed to be adulterated within the meaning of this act. All manufacturers of vinegar in the State of Minnesota, and all persons who reduce or re-barrel vinegar in this state, and all persons who handle vinegar in lots of one barrel or more, are hereby required to stencil or mark in black figures at least one inch in length, on the head of each barrel of vinegar bought or sold by them, the kind of vinegar contained in each package or barrel, together with the name of the manufacturer and location of the factory where the same is made, and the standard strength of the vinegar contained in the package or barrel, which latter shall be denoted by the number of grains of pure bicarbonate of potash required to neutralize one fluid ounce of vinegar. And any neglect so to mark or stencil each package or barrel, or any false marking of packages or barrels, shall be deemed a misdemeanor, and shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars and costs.

Sec. 12. Whoever violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than ten dollars nor more than fifty dollars and costs.

Sec. 13. Whoever adulterates for the purpose of sale, lard with cotton seed oil, or other vegetable oils, or terra alba or any substance injurious to health, or whoever barter or gives away or sells, or has in his possession with intent to sell, any substance intended for food, which has been adulterated with cotton seed oil, terra alba, or any other substance injurious to health, shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than twenty-five dollars or more than one hundred dollars and costs.

Sec. 14. The having in possession of any adulterated lard, by any dealer or trader, shall, for the purpose of this act, be deemed *prima facie* evidence of intent to sell the same.

Sec. 15. No person shall within this state manufacture, brew, distill, have or offer for sale, or sell any spirituous or fermented or malt liquors, containing any substance or ingredient not normal or healthful, to exist in spirituous, fermented or malt liquors, or which may be deleterious or detrimental to

health when such liquors are used as a beverage, and any person violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars or more than one hundred dollars and costs for the first offense, and by a fine of not less than fifty dollars or more than one hundred dollars and costs, or imprisonment of not less than thirty or more than ninety days, or by both such fine and imprisonment for each subsequent offense.

Sec. 16. It shall be the duty of the state dairy and food commissioner and his assistants, experts and chemists by him appointed, to enforce the provisions of this act. The said commissioner is hereby authorized and empowered to employ such experts and chemists as may be deemed by him necessary for the proper enforcement of this law. Their compensation to be fixed by the commissioner. All charges, accounts and expenses authorized by this act shall be paid by the state treasurer upon a warrant drawn by the state auditor.

Sec. 17. The said commissioner and assistant commissioner, and such experts and chemists as they shall duly authorize for the purpose, shall have access, ingress and egress to all places of business, factories and buildings where the same is manufactured or kept for sale, cases or vessels used in the manufacture and sale of any spirituous, fermented or malt liquors or any imitation thereof, or any of the substances or articles mentioned in this act. They shall also have power and authority to open any package, car or vessel containing such articles which may be manufactured, sold or exposed for sale in violation of the provisions of this act, and may inspect the contents therein, and may take samples therefrom for analysis. All clerks, book-keepers, express agents, railroad officials, employes or common carriers shall render to them all the assistance in their power, when so requested, in tracing, finding or discovering the presence of any prohibited article named in this act. Any refusal or neglect on the part of such clerks, book-keepers, express agents, railroad officials, employes or common carriers to render such friendly aid, shall be deemed a misdemeanor, and be punished by a fine not less than fifty dollars or more than one hundred dollars for each and every offense.

Approved as amended April 20, 1891.

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## CHAPTER 141.

### AN ACT TO PREVENT FRAUD IN DAIRY PRODUCTS AND TO PRESERVE HEALTH.

Section 1. Any person or firm who shall make or manufacture imitation butter, or butter made of part cream and part caseine and other ingredients under what is known as the "Quinness patent" or process, or any other similar process, whereby the caseine of milk and other ingredients are made to imitate and resemble genuine butter made from cream, shall stamp each package of the same on the top and sides with lampblack and oil, the words "patent butter" in letters at least one-fourth of an inch wide and one-half of an inch long.

Whoever violates the provisions of this section is guilty of a misdemeanor, and shall be punished for each offense by a fine of not less than twenty-five dollars nor more than one hundred dollars.

Sec. 2. Whoever sells or offers for sale any imitation or patent butter, as described in section one of this act, shall give to each purchaser of said goods a printed card stating correctly the different ingredients contained in the said compound.

Whoever violates the provisions of this section is guilty of a misdemeanor, and shall be punished for each offense by a fine of not less than twenty-five dollars, nor more than one hundred dollars.



## CHAPTER 21, GENERAL LAWS OF MINNESOTA FOR THE YEAR 1893.

AN ACT IN RELATION TO THE SALE OF HONEY COMPOUNDED OR ADULTERATED, AND TO PREVENT FRAUD AND TO PRESERVE THE PUBLIC HEALTH.

Section 1. It shall be unlawful for any person or persons within the state of Minnesota, to offer for sale or have in their possession with intent to sell, sell or cause to be sold honey compounded, manufactured from, or mixed with glucose, sugar syrup of any kind, or any substance whatever, not the legitimate and exclusive product of the honey-bee, unless the package containing same is so marked and represented as such, and bearing the label upon the package printed thereon in heavy Gothic capitals, eighteen point, the name of the person or persons having compounded, manufactured or mixed the same, and the name of the substance or material from which it is compounded, manufactured or mixed with.

Sec. 2. It shall be unlawful for any person or persons within the state of Minnesota to offer, or have in their possession for sale, sell or cause to be sold honey which has not been made by the bees from the natural secretion of flowers or plants, but which has been stored or made by the bees from glucose, sugar syrup or any other material or substance fed to them, unless the same is marked, represented and designed as such, and bearing a label upon each package printed in heavy Gothic capitals, eighteen point, thereon, the name of the person or persons who fed, or caused to be fed, the substance or material from which the same is stored or made, and the name of the substance or material from which the said honey is stored or made.

Sec. 3. Any person or persons violating sections one and two of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, be punished for each offense by a fine of not less than fifteen dollars or more than one hundred dollars, or by imprisonment in the county jail not exceeding thirty days, or both such fine or imprisonment.

Sec. 4. The having in possession by any person or persons or firm any honey compounded, manufactured or mixed as hereinbefore described, or any honey stored or made by the bees as hereinbefore described, and not labeled as provided in this act, shall be considered *prima facie* evidence that the same is kept in violation of the provisions of this act.

Sec. 5. It shall be the duty of the state dairy and food commissioner and his assistants, experts, chemists and agents by him appointed, to enforce the provisions of this act.

Sec. 6. The said commissioner, and his assistants, experts, chemists, and others by him appointed, shall have access, ingress and egress to all places of business and buildings where the same is kept for sale. They shall also have power and authority to open any package, car or vessel containing such articles which may be manufactured, sold or exposed for sale in violation of the provisions of this act, and may inspect the contents therein, and take samples therefrom for analysis. All clerks, bookkeepers, express agents, railroad agents, or officials, employes or common carriers, or other persons shall render them all the assistance in their power, when so requested, in tracing, finding or discovering the presence of any prohibited article named in this act. Any refusal or neglect on the part of such clerk, bookkeeper, express agent, railroad agents, employes or common carriers to render such a friendly aid, shall be deemed a misdemeanor, and be punished by a fine of not less than twenty-five dollars or more than fifty dollars for each and every offense.

Sec. 7. In all prosecutions under this act, the costs thereof shall be paid in the manner now provided by law, and such fine shall be paid into the state treasury.

Sec. 8. All acts and parts of acts inconsistent with this act are hereby repealed.

Sec. 9. This act shall take effect and be in force from and after its passage.

Approved April 17, 1893.

## NO. 292.—H. F. NO. 455.

AN ACT TO PRESERVE THE PUBLIC HEALTH BY REQUIRING DEALERS IN CERTAIN CASES TO EMPTY AND WASH CANS, BOTTLES AND VESSELS USED IN TRANSPORTING MILK OR CREAM.

Section 1. Any person or persons, firm or corporation who receives any milk or cream in cans, bottles or vessels which has been transported over any railroad or boat line, where such cans, bottles or vessels are to be returned, shall cause the said cans, bottles or vessels to be emptied before the said milk or cream contained therein shall become sour, and shall cause the said cans, bottles and vessels to be immediately washed and thoroughly cleansed and aired.

Sec. 2. Whoever violates any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than twenty-five dollars or more than fifty dollars, or by imprisonment of not less than fifteen or more than thirty days for the first offense, and by imprisonment of sixty days for the second and each subsequent offense.

Sec. 3. It shall be the duty of the state dairy and food commissioner and his assistants, experts, chemists and agents by him appointed, to enforce the provisions of this act.

Sec. 4. In all prosecutions under this act the costs thereof shall be paid in the manner now provided by law, and such fines shall be paid into the state treasury and placed to the credit of the state dairy and food commissioner's fund.

Sec. 5. This act shall take effect and be in force from and after its passage.

Approved April 25, 1895.

## NO. 398.—S. F. NO. 575.

AN ACT TO PREVENT THE ADULTERATION OF CANDY.

Section 1. No person shall, by himself, his servant or agent, or as the servant or agent of any other person or corporation, manufacture for sale or knowingly sell or offer for sale any candy adulterated by the admixture of terra alba, barytes, talc or any other mineral substance, by poisonous colors or flavors or other ingredients deleterious to health.

Sec. 2. Whoever violates any of the provisions of this act shall be punished by a fine not exceeding \$100, nor less than fifty dollars. All candy so adulterated shall be forfeited and destroyed under direction of the court.

Sec. 3. This act shall take effect and be in force from and after its passage.

Approved April 25, 1895.

AN ACT RELATING TO THE INSPECTION OF MILK AND OF DAIRIES AND OF DAIRY HERDS, AND TO PROVIDE FOR THE LICENSING AND REGULATION OF THE SALE OF MILK IN CITIES.

Section 1. The city council of any city may by ordinance provide for the inspection of milk and of dairies and of dairy herds kept for the production of milk within its limits, and issue licenses, for which no fee shall be charged, for the sale of milk within its limits and regulate the same, and may authorize and empower the board of health to enforce all laws and ordinances relating to the production and sale of milk and the inspection of dairies and dairy herds producing milk for sale or consumption within such city and to appoint such inspectors, experts and chemists as are necessary for the proper enforcement of such laws and ordinances, their compensation to be fixed by the city council, and such inspectors, experts and chemists shall be possessed of such necessary powers within the limits of such city as shall be prescribed by ordinance, but no such ordinance shall conflict with any law of this state.

Sec. 2. Nothing in this act contained shall affect or interfere with any of the powers and duties conferred upon the state dairy and food commissioner or his deputies and agents by any law of this state.

Sec. 3. This act shall take effect and be in force from and after its passage.

Approved April 26, 1895.

I would call the attention of the wholesale grocers, jobbers and retail dealers to the Food Law as amended. Every provision of these acts will be rigidly enforced.

BERNDT ANDERSON,  
Dairy and Food Commissioner.







**BIENNIAL REPORT**

OF THE

**ATTORNEY GENERAL**

TO THE

**GOVERNOR OF THE STATE OF MINNESOTA,**

FOR THE

**Biennial Period Ending July 31, 1896.**

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ST. PAUL, MINN.  
THE PIONEER PRESS COMPANY.  
STATE PRINTERS.  
1897.



BIENNIAL REPORT  
OF THE  
ATTORNEY GENERAL  
FOR THE

BIENNIAL PERIOD ENDING JULY 31, 1896.

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State of Minnesota, Aug. 1, 1896.

To His Excellency D. M. Clough, Governor of Minnesota,

Sir: In accordance with law, I have the honor to lay before you the official report of the business transacted by this department for the two years ending July 31, 1896, containing tabulated lists of cases in which I have been officially interested, the opinions of general interest which I have rendered, and abstracts of the reports of the county attorneys, together with other items pertaining to the administration of this office.

I have the honor to be, very respectfully,

H. W. CHILDS,  
Attorney General.

CRIMINAL CASES IN SUPREME COURT.

State of Minnesota vs. Frank Hoskins. Otter Tail county (62 N. W. Rep. 270). Charge, criminal libel; appeal from an order overruling demurrer to the indictment. The order appealed from was affirmed.

State of Minnesota vs. Frank Floyd and Louis Floyd. Hennepin county (63 N. W. Rep. 1096). Defendants were jointly indicted upon the charge of grand larceny in the first degree and duly convicted thereof. An appeal was taken to the supreme court from an order denying a new trial, with the result that the order appealed from was affirmed.



State of Minnesota vs. Gustave Peterson and John N. Ostberg. Polk county (63 N. W. Rep. 171). Defendants were indicted for selling intoxicating liquors to a minor. A motion was made to set aside the indictment, which was denied, and the case was certified to the supreme court. Action of the trial court denying the motion was sustained.

State of Minnesota vs. Edson R. Smith. Le Sueur county (64 N. W. Rep. 1022). The defendant was convicted of the crime of receiving deposits for a bank knowing the same to be insolvent. The cause was thereupon certified to the supreme court. The ruling of the trial court upon the question certified to was affirmed.

State of Minnesota vs. Alexander George. Winona county (63 N. W. Rep. 100). The defendant was convicted of larceny from the person, and the cause was certified to the supreme court. The questions certified were answered in the affirmative.

State of Minnesota vs. Harry T. Hayward. Hennepin county (64 N. W. Rep. 90). Defendant was convicted of murder in the first degree, and from an order denying a motion to set aside the judgment and for a new trial, appealed to the supreme court. Motion for a stay was granted.

Same case as above (65 N. W. Rep. 63). Defendant was convicted of murder in the first degree, and from an order denying a new trial, appealed to the supreme court. The order appealed from was affirmed.

State of Minnesota vs. Samuel Cody. St. Louis county (67 N. W. Rep. 798). Defendant was convicted of forgery, and thereupon sued out a writ of error to the supreme court. The supreme court held the indictment under which the conviction was had insufficient and for that reason reversed the judgment, remanded the case to the district court and directed the entry of judgment discharging defendant without prejudice to the right of the district court in its discretion to resubmit the defendant's case to another grand jury. The defendant has subsequently been reindicted, convicted and sentenced to serve a term in the state prison, where he is now confined.

State of Minnesota vs. Robert E. English. Norman county (64 N. W. Rep. 1136). The defendant was convicted of the crime of larceny, and from a judgment denying a new trial appealed to the supreme court. The order appealed from was reversed and a new trial granted.

State of Minnesota vs. Kristian Kortgaard. Hennepin county (64 N. W. Rep. 51). The defendant was convicted of the crime of embezzlement, and from an order denying a new trial appealed to the supreme court. The order appealed from was affirmed.

State of Minnesota ex rel. W. D. Russell vs. District Court, Fourteenth Judicial District, Polk county (62 N. W. Rep. 831). W. D. Russell was adjudged by Frank Ives, district judge, guilty of contempt of court, and in answer to writ of certiorari issued on his relation the proceeding was certified to the supreme court. It was ordered that the judgment be reversed.

State of Minnesota ex rel. Hugh Quigley vs. Frank Ives, District Judge. Polk county (62 N. W. Rep. 831). Hugh Quigley was adjudged by Frank Ives, district judge, guilty of contempt of court, and in answer to writ of certiorari issued on his relation the proceeding was certified to the supreme court. It was ordered that the judgment be reversed.

State of Minnesota vs. Michael M. Madigan. Redwood county (68 N. W. Rep. 179). The defendant was convicted of perjury, and from the denial of an order vacating the verdict and judgment and granting a new trial, appealed to the supreme court. The order appealed from was affirmed.

#### CIVIL CASES IN SUPREME COURT.

United States Express Co. vs. August T. Koerner (68 N. W. Rep. 181). The defendant is the state treasurer of the State of Minnesota, and sent by the United States Express Company United States registered bonds of the face value of \$200,000 to the treasury department at Washington, D. C., for cancellation. When he delivered the package to the express company he informed it that the value of the bonds was \$1,000, and paid seventy-five cents, the charge made at that time for transporting the package to Washington. Subsequently the company demanded for conveying said package the sum of \$116, which defendant declined to pay, whereupon action was brought by the express company in the district court for Ramsey county, and was tried before Judge Otis, who dismissed the action at the close of plaintiff's testimony. The plaintiff moved for a new trial, which was denied, and from the order denying a new trial the plaintiff appealed to the supreme court, where the case was duly argued and the order of the court below affirmed.

State of Minnesota vs. D. C. Bell, Receiver of the City Bank of Minneapolis (67 N. W. Rep. 212). The state having deposited moneys in the City Bank of Minneapolis, which became insolvent, and D. C. Bell having been appointed receiver, an application was made by the state to the district court for Hennepin county to have the claim of the state adjudged a preferred one against the assets of said bank. The hearing came on before Judge Robert Jamison,

who held that the state was a preferred creditor and ordered the payment of the claim of the state in full. From this order the defendant appealed to the supreme court, and the said court affirmed the order of the court below.

#### CIVIL CASES IN DISTRICT COURT.

State of Minnesota ex rel. Railroad and Warehouse Commission vs. Adams Express Company. A writ of mandamus was applied for in the district court for Ramsey county to compel the defendant, Adams Express Company, to comply with chapter 152 of the Laws of 1895, entitled, "An act to regulate express companies, declaring them to be common carriers, and make such companies subject to the laws of this state regulating common carriers." The defendant appeared specially and moved to vacate the proceedings on the ground that the court had no jurisdiction of the defendant. The motion was denied by Judge Egan, and from this order the defendant appealed to the supreme court, where the case is now pending.\*

Julia A. Dorothy vs. D. M. Clough as Governor and George H. Hazzard, Park Commissioner. Plaintiff commenced this action in the district court of Chisago county, to test the constitutionality of chapter 169 of the Laws of 1895, being an act entitled "An act to authorize the governor of the State of Minnesota to acquire title to certain lands on and along the banks of the St. Croix river at and near the Dalles of the St. Croix for the State of Minnesota, and to occupy and improve the same as a public park, and making appropriation to enable the governor to make compensation therefor." Plaintiff owned a lot which the commission appointed under the act undertook to condemn, and she being dissatisfied with the award applied for a writ of temporary injunction before Judge Williston, one of the district judges for the First judicial district. The case was argued on July 25th; briefs were thereafter filed and the case taken under advisement by the judge.†

Charles Venables vs. Henry A. Castle et al., Trustees of Soldiers' Home. This action was brought by plaintiff in the district court for Hennepin county, under a writ of mandamus applied for to compel the defendant as trustees to reinstate him in the soldiers' home. One of the rules of the board of trustees required the inmates to allow the board to retain all but four dollars per month of their pension to help support the institution while living there. For a while Mr. Venables complied with this rule, but finally re-

\*Since writing the above the order of the lower court has been affirmed.

†Since writing the above the order of the court has been filed sustaining the constitutionality of the law.



fused to submit to it and was dishonorably discharged from the institution. Hearing was had before Judge Seagrave Smith at Minneapolis, who promptly denied the application for a writ and held that the rule was a reasonable one and that the board had a right to enforce it.

Edmund M. Pope and Railroad and Warehouse Commission vs. St. Paul & Duluth Railroad Company, Minneapolis & St. Louis Railroad Company, and W. H. Truesdale, Receiver. This action was brought in the district court for Hennepin county to compel the roads to make a reasonable joint tariff rate on the transportation of coal from Duluth to Mankato, and to reduce the then existing rate, which was claimed to be exorbitant by the complainant, Mr. Pope. The railroad companies appeared and moved to dismiss on the ground that there was a defect of parties, the Wisconsin, Minnesota & Pacific Railroad Company not being a party defendant. It appeared upon the hearing that this company owned part of the road over which the joint tariff was made, being that part from Waterville to Mankato. It also appeared that the joint tariff was made by the St. Paul & Duluth Railroad Company and the Minneapolis & St. Louis Railroad Company, and that the Minneapolis & St. Louis Railroad Company operated a road from Waterville to Mankato. The court, after listening to arguments on this motion, dismissed the case for want of jurisdiction.

State of Minnesota vs. American Exchange Bank et al. The American Exchange Bank, prior to 1893, had been designated as one of the depositories for the deposit of state funds, and gave a bond to secure the state for moneys so deposited, with a number of sureties thereon, and this action was brought to recover the balance due the state, and was tried in June, 1896, before Judge Jamison, one of the district judges for Hennepin county, and judgment recovered for the full amount.

Eugene Guilbault vs. State of Minnesota. This action was brought in the district court for Faribault county by the claimant, E. Guilbault, against the state, and was tried before the court at the election of the attorney general. After listening to the evidence the court decided that the claim of the plaintiff was fully established and ordered judgment therefor.

State of Minnesota vs. Farmers and Merchants' State Bank et al. The Farmers' and Merchants' State Bank, prior to 1893, had been designated as one of the depositories for the deposit of state funds, and gave a bond to secure the state for moneys so deposited, with a number of sureties thereon. This action was brought to recover the balance due the state, was tried in June, 1896, before



Judge Jamison, one of the district judges for Hennepin county, and judgment was recovered for the full amount.

Hans P. Hanson and Chas. Anderson vs. H. N. Avery, Charles N. Hewitt et al. This action was brought by the plaintiffs in the district court for Hennepin county against the defendants for damages for ordering certain cows killed which defendants claimed were diseased. Issue was joined and case set for trial. On the morning of the day when the case was to be tried, plaintiffs dismissed the same.

State of Minnesota vs. Joseph Fredette. This was an action brought by the State of Minnesota against the defendant, Joseph Fredette, to recover the value of timber cut and removed from section 36, township 48, north of range 16 west. A verdict was recovered in favor of the state for \$368.90; costs taxed and judgment entered at \$438.22, which was collected. The case was tried at Duluth, Eleventh judicial district.

Hans Sorenson vs. Berndt Anderson et al. This action was brought by the plaintiff in the district court for Hennepin county against Berndt Anderson, dairy and food commissioner of the State of Minnesota, and two of his assistants for damages for libel. A report had been made and filed in the office of the dairy and food commissioner, stating that the cows of plaintiff, who kept a dairy at Lake Amelia, were not in good health. Upon this report, which was published in the newspapers, the cause of action was based for malicious libel. The cause was tried before Judge Seagrave Smith, who dismissed the same upon the close of plaintiff's testimony.

State, ex rel. Attorney General, vs. Bank of St. Charles. The defendant is one of the banking corporations of the State of Minnesota. Being in an insolvent condition, upon the request of the bank examiner, application was made to Judge Gould of the Third judicial district for the appointment of a receiver, and Hon. Charles A. Morey of Winona was duly appointed receiver, who qualified and has been acting as such receiver since his appointment.

State of Minnesota vs. Merchants Bank of Lake City. This was one of the banking corporations of the State of Minnesota, and becoming insolvent in March, 1895, upon the request of the bank examiner application was made to Judge Gould for the appointment of a receiver, who appointed R. H. Moore of Lake City, receiver of said insolvent bank.

State of Minnesota vs. Cannon River Manufacturers' Association. The defendant is one of the corporations of the State of Minnesota, organized for the purpose of improving the water power along the Cannon river, and obtained a grant of 25,000 acres of land from the

state for the improvement and development of the water power along said river. Complaints were made that the defendant had neglected and refused to expend the money for the purpose of improving the water power of the river, and had practically ceased to do business, the members of said association having parted with their interests in mills along the river. This action was brought to dissolve the corporation, and was tried before Judge Thomas S. Buckingham, district judge for the Fifth judicial district, who made an order dissolving the corporation. Judgment was entered accordingly, from which judgment the defendant has appealed to the supreme court, where the action is now pending.\*

In the Matter of the Appeal of Wisconsin, Minnesota & Pacific Railroad Company and the Willmar & Sioux Falls Railway Company, from the order of the Railroad and Warehouse Commission on complaint of John F. Jacobson vs. the Wisconsin, Minnesota & Pacific Railroad Company and the Willmar & Sioux Falls Railway Company. This was a proceeding brought by the railroad and warehouse commission upon the complaint of John F. Jacobson against the defendant companies, whose lines of road intersect at and near Hanley Falls, Minn., to compel the said defendant companies to put in track facilities at said station, whereby cars could be transferred from one road to the other. Evidence was taken before the railroad and warehouse commission at Hanley Falls, and an order thereafter was made by the commission requiring said defendant companies to place the requisite track facilities at said Hanley Falls necessary to transfer cars from one road to the other. From this order the defendant companies appealed to the district court, where the action is now pending.

State of Minnesota, ex rel. Attorney General, vs. The American Savings and Loan Association (67 N. W. Rep. 1). The defendant was one of the building and loan associations organized under the laws of this state. Complaint having been made that the affairs of the defendant were being grossly mismanaged by its officers, and that it was insolvent, this action was brought to dissolve the corporation and for the appointment of a receiver. Upon application ex-parte before Judge H. C. Belden, Hon. W. D. Hale was appointed temporary receiver. Demurrer was interposed to the complaint, and after argument Judge Belden overruled the demurrer, from which order an appeal was taken to the supreme court, and the order overruling the demurrer was sustained. By consent of the parties Hon. W. D. Hale was duly appointed permanent receiver of said association.

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\*Note.—Since the above was written, the supreme court has affirmed the judgment of the district court.

State of Minnesota, ex rel. H. W. Childs, Attorney General, vs. Northern Savings and Loan Association. It appearing that the defendant company was insolvent, that nearly all the shareholders had filed applications for withdrawal, and that the business of the company was characterized by great neglect on the part of its management, I began an action in the county of Hennepin for the appointment of a receiver to take charge of the effects of the said company and secure the appointment of a receiver, who is now in charge of the company's affairs.

State of Minnesota, ex rel. H. W. Childs, Attorney General, vs. C. E. Bondy et al. The defendants in the above entitled action were the duly appointed commissioners to locate and acquire lands and prepare plans for a fourth hospital for the insane under the provisions of chapter 157 of the General Laws of the State of Minnesota for the year 1895. On the 18th day of December, 1895, the said commission met at the capitol in the city of St. Paul and determined to accept a proposal made by the city of Hastings for a site for said hospital. Thereafter, at a meeting held in the city of Fergus Falls, the commissioners assumed to reconsider the vote by which they had previously decided to locate the hospital at the city of Hastings, and to locate the same in the city of Anoka. Certain citizens of the city of Hastings desiring to have the question of the validity of the change of location of site adjudicated, applied to me for leave to use the name of the state in an action therefor. Such leave was granted, and an action was commenced in the district court for Ramsey county, resulting in a judgment against the complainant. An appeal has been taken to the supreme court of the state, where the action is now pending.\*

State of Minnesota, ex rel. H. W. Childs, Attorney General, vs. Northern Pacific Elevator Company. It appearing that the above named company was absolutely insolvent, I brought an action for the dissolution of its organization and the forfeiture of its charter. Judgment was rendered accordingly.

State of Minnesota, ex rel. H. W. Childs, Attorney General, vs. Lake Superior Elevator Company. It appearing that the above named company was absolutely insolvent, I brought an action for the dissolution of its organization and the forfeiture of its charter. Judgment was rendered accordingly.

State of Minnesota, ex rel. H. W. Childs, Attorney General, vs. Red River Valley Elevator Company. It appearing that the above named company was absolutely insolvent, I brought an action for the dissolution of its organization and the forfeiture of its charter. Judgment was rendered accordingly.

\*Since affirmed by supreme court.



State of Minnesota, ex rel. H. W. Childs, Attorney General, vs. Union Improvement and Elevator Company. It appearing that the above named company was absolutely insolvent, I brought an action for the dissolution of its organization and the forfeiture of its charter. Judgment was rendered accordingly.

State of Minnesota vs. Great Northern Railway Company. It came to my attention that an attempt was being made by certain stockholders of the Great Northern Railway Company and the Northern Pacific Railroad Company to consolidate the interests of the two systems of railway. The essential features of the agreement which it was proposed to enter into were as follows:

1. The holders of the second, third and consolidated mortgages of the Northern Pacific Company shall cause the mortgages to be foreclosed, and the railroads and other properties and franchises of the company, including its franchise to be a corporation, to be sold subject to the divisional and general first mortgage bonds.

2. They shall cause the properties to be purchased in their interest and a new company formed.

3. The new company shall then issue its bonds to the aggregate amount of \$100,000,000 and its fully paid up stock to the further amount of \$100,000,000.

4. It shall then enter into an agreement with the Great Northern Railway Company for the exchange of traffic, between their lines, at all intersecting points.

5. They shall join in providing facilities for an interchange of cars and traffic; and the Northern Pacific shall interchange traffic with defendant, and operate its trains to that end upon the terms agreed upon under joint traffics, or otherwise.

6. The defendant shall have the right to bill and route its traffic, passengers and freight, from points on its line by way of such connections as now exist or may hereafter be constructed between said line and the Northern Pacific Company, to Winnipeg, Tacoma, Portland, and all points in the different states through which the line of the Northern Pacific Railroad extends and not reached by the line of this defendant.

7. The defendant shall have the right to make use of the depot and terminal facilities of the Northern Pacific Company at Spokane Falls and other points, jointly with that company.

8. In consideration of such traffic contract, the Great Northern Railway Company shall guarantee for the benefit of the holders of said bonds, that the net income of the latter company applicable to the payment of the interest upon said bonds shall never fall below \$6,200,000 per year.



9. As compensation for the risk of loss to the stockholders in the defendant company, which the said guarantee might produce by the diversion of portions of the earnings of the Great Northern Railway Company to make good its said guarantee of interest upon the bonds of the reorganized company, the last named company shall transfer to the shareholders of the Great Northern Company, or to some person or corporation as trustees, for their use, the one-half part of the capital stock of said reorganized company.

By such arrangement it was obvious that both companies were to have access for the running of trains to all the tracks of the two systems. Terminal facilities were to be used in common. The Great Northern Company was to give its guarantee to the shareholders of the Northern Pacific Company that their interest to the amount of \$6,200,000 per year would be paid. The shareholders of the Great Northern Company, on the other hand, were to become the recipients of bonds to the amount of \$50,000,000.

I deemed this nothing short of practical consolidation of the two interests, and felt it my duty to institute a suit for the purpose of enjoining the Great Northern Railroad Company, it being a corporation organized under the laws of this state, from effectuating such a consolidation.

A similar action had previously been instituted in the United States circuit court by one Pearsall, a resident of the city of New York, and a stockholder of the Great Northern Railway Company. The federal court refused to issue the writ prayed for, whereupon an appeal was taken to the United States supreme court by Mr. Pearsall.

The action in the state court resulted in a victory for the state. The Hon. William Louis Kelly, who heard the case, ordered the issuance of an injunction as prayed for.

Inasmuch as it was obvious that the case which had been appealed to the United States supreme court would be decided by that court long before the action instituted in the state court could be removed by writ of error, I perceived no other course available to the state than to procure permission to file a brief in the Pearsall case. The United States supreme court gave the case speedy consideration, and rendered a decision holding in substance that the Great Northern Railway Company had no authority under its charter to enter into the agreement contemplated by it. It is difficult to estimate the far-reaching significance of that decision. It means, in brief, that those great properties must hereafter be operated independently of each other and as natural competitors in the

business of transporting persons and merchandise over their respective lines.

In the Matter of the Appeal of the Great Northern Railway Company from the Order of the Railroad and Warehouse Commission in the Complaint of Elias Steenerson vs. Great Northern Railway Company. A complaint was filed by Elias Steenerson, a citizen of Polk county, with the railroad and warehouse commission, alleging that the freight rates charged by the Great Northern Railway Company on grain from East Grand Forks, Fisher and Crookston, respectively, to Minneapolis and Duluth, respectively, were excessive and unreasonable, and praying that the same be reduced by said commission. After hearing before the commission an order was made Sept. 8, 1894, fixing the rates to be charged as freight on grain and its products on all the lines of said railroad company in the State of Minnesota. Said order did not refer specifically to the points named in said complaint, but established the rate to be charged per hundred pounds per mile in sections of five miles each, without discrimination as to locality. From the order so made an appeal was taken by the railroad company to the district court of Ramsey county. The case came on for hearing before Hon. C. D. Kerr of said court, who, after voluminous testimony had been taken, reversed the order of the commission. The hearing involved the following, among other considerations:

1. Whether the court had authority to do more than to affirm or reverse the order of the commission, or whether it might, if justified by the evidence, modify the order of the commission in any respect.
2. Whether the commission was authorized under the complaint to make an order establishing rates from specific intermediate points.
3. The rules which should govern in determining the valuation of the property of the company complained of in fixing a reasonable rate.
4. The rule which should govern in determining the gross earnings of the company upon interstate business.
5. To what extent the affairs of the Northern Pacific Company should be considered in fixing a reasonable rate.
6. Whether the rates established by the commission were reasonable.

Upon all of the foregoing propositions, the holding of the court was substantially against the contentions of the complainant.

An appeal has been taken to the supreme court, where the case is now pending, and will be heard in January, 1897.

State, ex rel. C. F. Baston, vs. State Board of Equalization, and State, ex rel. C. H. Burwell, vs. State Board of Equalization. The two cases above named were brought in the district court of Hennepin county to test the validity of the action of the state board of equalization in equalizing certain property in the county of Hennepin. The action of the board was declared invalid in such regard, because of non-compliance with plain statutory provisions.

#### CRIMINAL CASES IN DISTRICT COURT.

This office has been called upon to assist in the prosecution of the following criminal causes:

State vs. A. Cristello. Indicted by the grand jury of Aitkin county of the crime of murder in the first degree. Convicted of murder in the second degree.

State vs. U. Cristello. Indicted by the grand jury of Aitkin county of the crime of murder in the first degree. Convicted of murder in the second degree.

State vs. H. Dodd. Indicted by the grand jury of Itasca county of the crime of murder in the first degree. Convicted of manslaughter.

State vs. Peter McKenna. Indicted by the grand jury of Itasca county of the crime of murder in the first degree. The action was dismissed for insufficiency of evidence to warrant a conviction.

State vs. Erickson. Indicted by the grand jury of Polk county of murder in the first degree. Convicted of manslaughter in the third degree.

State vs. Charles F. Stuckey. Indicted by the grand jury of St. Louis county of the crime of grand larceny in the first degree. Acquitted.

State vs. Titus. Indicted by the grand jury of Steele county of the crime of grand larceny. Convicted and sentenced to the reformatory.

State vs. Carolin Hall. Indicted by the grand jury of Chisago county for the crime of murder in the first degree. Acquitted.

State vs. Greene. Indicted by the grand jury of Chisago county of the crime of manslaughter in the first degree. Acquitted.

State vs. Lanson. Indicted by the grand jury of Pine county of the crime of attempting to wreck a train. Acquitted.

State vs. March. Indicted by the grand jury of Pipestone county of the crime of grand larceny in the third degree. Convicted.



State vs. J. M. Bartlet et al. Indicted by the grand jury of Le Sueur county of the crime of grand larceny. The defendant Bartlet was tried and acquitted. The other indictments were thereupon dismissed.

State vs. W. F. Holmes. Indicted by the grand jury of Wabasha county of the crime of grand larceny in the first degree. Convicted at the first trial. An appeal was taken by the defendant to the supreme court, where the judgment was reversed on the ground of error committed by the trial court in its charge to the jury. At the second trial the defendant was acquitted.

State vs. Frank Hoskins. Indicted by the grand jury of Otter Tail county of the crime of criminal libel. Acquitted.

State vs. Carbury. Indicted by the grand jury of Freeborn county for murder in the first degree. Convicted of manslaughter in the second degree.

State vs. Musgrove. Indicted by the grand jury of McLeod county of murder in the first degree. Convicted of murder in the second degree.

#### CASES IN UNITED STATE SUPREME COURT.

Winona & St. Peter Land Company, Plaintiff-in-Error, vs. State of Minnesota, Defendant-in-Error. In the year 1886 certain lands of the plaintiff-in-error in Brown county, which had not theretofore been assessed for taxation, were assessed for taxes for prior years, some for each year from 1869 to 1886, others from 1870, from 1871 and from 1878, respectively, to 1886, each parcel being assessed for each year subsequent to its conveyance by the state to the Winona & St. Peter Land Company. On application to the district court of Brown county for judgment against the land, the company made answer and objected to the taxes, interest and penalties. The objections were overruled and judgment was ordered for the full amount thereof. Thereupon the case was certified to the supreme court. It was there held that the lands were taxable, but that in view of the fact that they had not been assessed for certain years, penalties could not be included in the assessments made by the county auditor for such years. The cause was thereupon removed by writ of error to the United States supreme court, where a judgment for dismissal and affirmance was ordered.

Winona & St. Peter Land Company, Plaintiff-in-Error, vs. State of Minnesota, Defendant-in-Error. The facts in this case are essentially identical with those recited in the preceding one, with the exception that the lands involved in this one are situate in Red-



wood county. The judgment of the supreme court of the state followed its decision in the former case, but it furthermore held that back interest on omitted taxes could not be charged, and overruled its former decision to the effect that the statute of limitations applies to proceedings to enforce payment of delinquent taxes. This case was also removed by writ of error to the United States supreme court, where it was heard upon its merits. It was there strenuously contended that there had not been such a sale of the lands as subjected them to taxation within the contemplation of the act of congress granting the same to the company. The judgment of the state court was affirmed in all respects. In view of the great importance of the questions involved, I appeared personally in the United States supreme court in both cases and argued them orally on behalf of the state.

#### BANK CASES.

Since my last report the assignee of the New England Bank has paid into the state treasury all of the principal of the state's claim, and there now remains to be collected the interest accrued thereon.

The claim of the State vs. the State Bank of Minneapolis is not yet wholly recovered, but I am encouraged to believe that it will be adjusted at an early date. A very advantageous sale of certain real estate has been effected, upon which about twelve thousand dollars has been paid by the purchaser, to the assignee, and the remainder of the purchase price, it is expected, will be paid within the next twelve months. Negotiations are now in progress for the payment by the sureties upon the official bond for the sum of twenty thousand dollars, which it is hoped will be paid into the state treasury within a short time.

Actions have been instituted against the principals and sureties upon the bonds given to the state by the Farmers' and Merchants' Bank and the American Exchange Bank, both of the city of Minneapolis, and judgments obtained for the amounts of the state's demands. The assets of both of the said insolvent institutions have proven of little value, by reason of a general depression in business, and the inability of the makers of the commercial paper and other securities, constituting the bulk of such assets, to pay the same. I hope to be able to recover the greater part of the state's claim from the said sureties in the enforcement of the judgments obtained as above stated. Whatever deficiency I am unable to collect by such means will be demanded from the ex-state treasurer and the sureties upon his official bond.

The actions thus brought upon the official bonds have been vigorously defended, but I am pleased to report that the state has been uniformly successful in all. The statute has received such construction by our supreme court as to establish the fact once for all that the state is a preferred creditor.

## PINE LAND CASES.

All of the cases except the two named below appearing in my last published report have been disposed of by settlements effected by the state auditor after consultation with me. From the nature of the evidence reported by that officer after he had caused careful examinations to be made, I became satisfied that the interests of the state would be much better subserved by settlements than by a continuance of litigation. I therefore concurred in his view as to such settlements, and the actions were accordingly dismissed. By such means the state has received the following sums of money:

From the Itasca Lumber Company.....	\$7,000
From Kehl & Deary.....	6,000
From Shevelin-Carpenter Company.....	3,000
From Mullikan & McGuire.....	1,000

The following cases are still pending in court:

State of Minnesota vs. Shevelin-Carpenter Company. Action for trespass. The state seized a large quantity of logs in the boom at Minneapolis which were replevined by the defendant. Two trials have already been had in district court and as many appeals taken to the supreme court. The case is now pending in district court of Hennepin county.

State of Minnesota vs. Powers & Dwyer. This is also an action brought for trespass. The state was unable to reach satisfactory terms of settlement with the defendants, and the case is still pending in court.

## DULUTH &amp; IRON RANGE RAILROAD COMPANY.

The question of the validity of the grant to the Duluth & Iron Range Railroad Company has been twice considered by me, once responsive to an inquiry addressed by the state senate in 1893 and again responsive to an inquiry of the state auditor under date of June 21, 1895.

The question is one of very great importance and should reach an early determination. In the opinion given to the state auditor in reply to his inquiry above noted, I relied upon the decision of the

supreme court of this state in the case of Minneapolis & St. Cloud Railroad Company, plaintiff, vs. Duluth & Winnipeg Railroad Company, defendant, and Duluth & Iron Range Railroad Company, intervenor (45 Minn. 104).

Subsequent to my communication to the state auditor, while entertaining the views therein expressed, I advised him that I should be pleased to initiate and carry on any appropriate proceeding in court with a view to the determination of the question, and requested him to furnish me with sufficient data bearing upon the question of compliance by the company with the requirements of law in building its road by the most direct and feasible route between the termini named in the granting act. The state auditor found himself handicapped in this regard by a want of sufficient funds with which to make the necessary surveys, and it was therefore deemed advisable by that officer and myself to defer further action until the necessary appropriation should be made by the legislature for making such surveys and procuring the evidence indispensable to a prosecution of the action on behalf of the state. My opinion to the state auditor will be found in No. 124 of the opinions printed in this volume.

#### SECTION THIRTY CASE.

In the month of June, 1896, I appeared before the secretary of the interior at Washington, D. C., and presented the claims of the state to the northwest quarter of the southwest quarter of section 30, township 63 north, range 11 west, Duluth land district.

The above described tract of land appeared upon the official records as dry land and not of the character contemplated by the act of March 12, 1860, conveying certain swamp lands to the State of Minnesota. The state auditor, however, received private information that the true character of the said tract had not been properly expressed by the field notes, and that it was in truth and fact swampy and not fit for cultivation within the meaning of the said act of congress. Such information was derived from the late John C. Judge, Esq., who was then an attorney at law, practicing his profession in the city of Minneapolis. The services of Mr. Judge were employed by the state auditor, and he was also authorized to represent the attorney general in whatever appropriate actions or proceedings should be instituted with a view to testing the rights of the state to the said tract. Long prior to the disclosures of Mr. Judge, the said tract had been the subject of more or less controversy, and one William Craig had, on Sept. 23, 1895, filed Porter-



field scrip for the same. The official surveys had been conducted in such a manner as to be wholly untrustworthy for any purpose. Mr. Judge died, unfortunately, a few days prior to the date fixed for a hearing before the secretary of the interior, and I thereupon secured an extension of time and gave the matter my personal attention. The hearing was had on an application for a hearing before the local land officers at Duluth for the purpose of determining the true character of the land. The secretary ruled against the state, for the reasons appearing in the following opinion:

## STATE OF MINNESOTA vs. CRAIG.

## HEARING.

DEPARTMENT OF THE INTERIOR,  
WASHINGTON, Aug. 31, 1896.

*To the Commissioner of the General Land Office,*

SIR: This case involves the northwest quarter of southeast quarter, section 30, township 63 north, range 11 west, Duluth land district, Minnesota, and is before the department upon appeal by the State of Minnesota from your office decision of Feb. 4, 1896, denying its application for a hearing to determine the character of this land.

The record shows that on Sept. 23, 1895, William Craig filed Porterfield scrip for this land, and on Nov. 18, 1895, John C. Judge, as agent and attorney of the State of Minnesota, filed his application for a hearing to determine the character of the land.

The act of March 12, 1860 (12 Stat., 3), extends to the States of Minnesota and Oregon the provisions of the act of Sept. 28, 1850 (9 Stat., 519).

The township plat was filed in the local office on July 20, 1885, and according to the field notes and the plats of that survey this land is returned as agricultural and not as swamp land.

In the application for a hearing various affidavits are submitted on the part of the state as a basis for ordering the hearing petitioned for. These affidavits are to the effect that in 1881 and at various dates subsequently, this tract was on the date of such survey or examination, of a swamp-land character. Your office decision held that the showing made was insufficient upon which to order a hearing.

On April 10, 1888, Dr. L. J. Woollen, chief of the swamp land division, as special agent, reported to your office the result of his investigation as to the character of certain lands in the Duluth land district, which had been selected and reported to your office as inuring to the state under the swamp land act of March 12, 1860. In his report he stated that from the evidence presented therewith the fraudulent character of the survey is clearly shown and made out in the following townships:

Township 63 north, 11 west.

Township 62 north, 11 west.

Township 63 north, 10 west.

Township 62 north, 10 west.

Township 62 north, 22 west.

Township 61 north, 21 west.

In particularizing his report he says:

"The numerous cases of conflict arising in said township against the swamp claim wherein the dry character of the different tracts claimed as swamp is clearly shown by sworn evidence, indicates that the survey of said township was made in fraudulent manner. \* \* \* There is one tract of fifty acres that was patented to the State of Minnesota in 1883 as swamp land, which was shown to be swamp by the field notes of survey, which was high, dry, and hilly land. \* \* \* This tract is especially valuable for iron



ore, and I was informed by a party living near it that the tract was probably worth \$100,000. From all the information I could gather I came to the conclusion that surveys made since that date are mostly fraudulent and unreliable in those townships where there is valuable timber and iron ore."

He therefore recommended that in those townships in the Duluth district where the surveys had been made since the date above mentioned, that the state be required to take her swamp land by agents in the field instead of by the field notes as heretofore, and "that all approvals of swamp land heretofore made for said townships, which had not been patented, be revoked and canceled. \* \* \* To continue patenting lands to the state by the field note readings in such townships would be a great wrong to the government and to those settlers who wish to make homesteads on agricultural land that, under the present system, is erroneously shown by the field notes to be swamp and overflowed."

Your office letter of April 28, 1888, transmitted Dr. Woollen's report to this department and concurred in his recommendation that all approvals of swamp lands which had been selected under surveys made since 1880 and not patented, be revoked and that the state be required to make swamp land selections by agents in the field instead of in the manner previously followed, and acting upon this report the then secretary on March 2, 1889 (L. and R. 174, page 438), said:

"I am of the opinion that the affidavit accompanying the report of Dr. Woollen furnished sufficient evidence that the surveys upon which the selections of swamp lands were approved were wholly unreliable, if not false and fraudulent, and that such unreliability could only have been due either to fraud or palpable mistake."

The recommendation of your office was accordingly approved, the approvals of the selections of swamp lands, based on the field notes of the alleged fraudulent surveys made since 1880, were revoked, and the state was required to make future selections by agents in the field.

This tract of land is situated within one of the townships mentioned in Dr. Woollen's report. It is apparent from reading the report of Dr. Woollen that the fraud of which he complains was in representing dry land to be swamp land, and that this fraud was brought about by certain corporations having become interested by reason of purchase from the state. In this particular only, in so far as I have been able to learn, was the survey of this township now under consideration deemed fraudulent. There is no allegation that this survey was not actually run; on the contrary, so far as this tract is concerned, the exact opposite appears to be the case.

In the affidavit of Reuben F. McClellan, who testified that in the month of December, 1895, he was detailed by the land commissioner of the State of Minnesota to make a careful and correct survey and examination of the tract of land, he avers that "on and during the 13th, 14th, and 15th days of December, 1895, he made a careful and correct survey and examination of said land, and that the plat attached is a correct plat of said survey of said land as made by deponent, and that the memoranda attached to said plat are correct notes of said survey, and that part or portion of said lands marked and indicated on said plat as dry land was, at the time of such examination and survey, in fact dry land, and that every part and portion of said tract of land, other than said part and portion marked as dry land on said plat, was at the time of such examination and survey, wet and overflowed land." The following appeared in his field notes: "Found all trees standing noted in the United States survey."

The other element entering into the survey being that of the character of the land as represented by the field notes, it has already been noted that the only objection to the correctness of such representation lies in the return of land actually dry, in fact, as being of a swampy nature.

The rights of the State of Minnesota attached to this land in 1860, on the 12th day of March, or not at all, and it was the character of the land upon that date which determined the question as to whether the rights of the State of Minnesota vested.

There is no affirmative showing in this record whatever that the land was of the character contemplated by the act supra, at the date of its passage.

The approval of a government map of survey which represents land to be of any specific character is the making of a *prima facie* case which has to be overcome and rebutted by the affirmative showing of the petitioners. It is true that the correctness of the survey has been questioned, but two facts are apparent in so far as they apply to the tract involved, and those are that the survey was actually made upon the face of the earth, and that the only objection to the survey of these townships was that land was returned as swamp which was, in fact, of an agricultural character.

There has never been, so far as I have been able to ascertain, any question that lands reported as agricultural were in fact not of such character. From plats furnished by the petitioners, it appears that there is a creek running through this forty-acre tract, which has ten feet of mud in it. Possibly, in the lapse of time since 1860, now exceeding one-third of a century, that stream may have been filled up, overflowing its banks, and has changed the character of this land. However that may be, it is sufficient to say that in the absence of an affirmative showing that the tract was of the character contemplated in the acts of 1850 and 1860, at the date of the passage of the latter act, the department would not be justified in ordering a hearing to determine this question.

The act of March 12, 1860 (12 Stat., *supra*), which was substantially reenacted in section 2490, Revised Statutes, provides that selection of lands by the states shall be made within two years from the adjournment of the state legislature, after notice by the secretary of the interior to the governor of the state, that the surveys have been completed and confirmed. This survey was made in 1885. The state asked for a hearing to determine the character of the land in 1895. What was the effect of the requirement that the selection should be made within two years after notice? Was it mandatory and imperative, or simply directory?

Endlich on the Interpretation of Statutes (612, sec. 433), says:

"It has indeed been said that no rule can be laid down for determining whether the command is to be considered as a mere direction or instruction involving no invalidating consequence in its disregard, or imperative, with an implied nullification for disobedience, beyond the fundamental one that it depends on the scope and object of the enactment. It may, perhaps, be found generally correct to say that nullification is the natural and usual consequence of disobedience, and that where an act required a thing to be done in a particular manner, that manner alone must be adopted."

And again, in section 436, in speaking of intervening adverse rights whose standing is being injured by the wrongful conduct of public officials, it is said:

"In a word, where a statute fixes a time within which a public officer is to perform some act touching the rights of others, and there is no substantial reason apparent from the statute itself, from other statutes, or from consequences of delay—e. g., a wrong to the intervening rights of third parties—why the act might not be as well done after the expiration of the period limited as during the same, or indicating that the legislature intended it should not be done at all if not within that period, the latter will, as regards third persons, be treated as directory, and fixing of it will not invalidate or prevent official acts, under the statute, after the expiration of the prescribed period."

It is not necessary in this case to pass upon the question of whether the failure to select or attempt to select within the two years prescribed by the statute determines the rights of the State of Minnesota. The only question here to be considered is, that intervening adverse rights having attached, whether the application for a hearing by the state looking toward a selection shall be considered.

I am of opinion that the clear intent and meaning of the act requiring the selection to be made within two years after notice of the survey, was a requirement inserted by the legislative will in order to protect citizens of the United States from just such annoyances as that presented by this proceeding in behalf of the State of Minnesota.

This tract of land was returned by the public survey as agricultural; the citizens of the United States had a right to act upon the faith of that return, and especially when the two years within which the State of Minnesota was



entitled to select the tract had passed with no attempt upon its part to make any claim under the act of 1860 in its behalf, any citizen of the United States had a right to assume that no such claim would in fact be made; and without in this decision holding that the State of Minnesota could not thereafter make a claim under the swamp act to this tract of land, it is sufficient to say that, having failed to do so within the time prescribed by the statute, its deferring such an attempt at selection until this time was at its own risk, and that in the presence of an intervening bona fide adverse claim this department will not now entertain that contention.

It is not enough to say that the grant in behalf of the states of Oregon and Minnesota contained in the act of 1860 was a present grant, and therefore conveyed the title to all lands which were in fact of a swampy character on the date of the passage of that act of March 12, 1860.

A grant must have definiteness and precision, and there is and could be no definiteness and precision until selection. To say that thirty-five years after a grant of swamp lands had passed within its domain, that a state can assert title to a particular tract of land, is to say that there is actually no bar of time within which such selection can be made, and there would be no such thing as quiet, peaceable possession of real estate inside the State of Minnesota, for fear that now or hereafter the State of Minnesota might undertake to prove any given tract unpatented, was in fact swamp, and inured under its grant.

The state denies the reception of notice of the making and confirmation of the survey, but your office decision states:

"The state accepted, in 1885, the list of selections of lands in this township made by the United States surveyor general and known as List No. 54. Whether any actual selection list was filed by the state authorities as a basis of this list by the surveyor general, or whether the surveyor general upon return of the field notes simply listed to the state, as swamp, all lands so shown, does not appear. But however that may be, it is admitted that a copy of the said list of selections was furnished the proper officer of the state having charge of its land matters. The state, by accepting the list tendered, adopted it as her own and made it on her part a segregation in said township of the swamp from the dry lands."

This would appear to be sufficient to dispose of the question of notice. In consideration, therefore, of the failure of the petitioners in this case to make out any showing whatever of the character of the land in 1860, the date at which the rights of the state attached, or failed to attach, and of the fact that this survey was actually made and its correctness in reference to its returns of dry land has never been questioned by this department, or any one else so far as the department is aware, and the fact that the survey as run has been identified by the petitioners themselves as a correct survey of the tract, and in consideration of the long lapse of time between the period at which the rights of the State of Minnesota attached, or did not attach, in consideration of this silence of the state and the intervention of bona fide adverse rights, for the above reasons and those so forcibly and logically set out in the opinion of the commissioner, I affirm his decision.

Herewith are returned the papers in the case.

(Signed)

Very respectfully,  
HOKE SMITH,  
*Secretary.*

#### RECOMMENDATIONS.

The law requires that the attorney general shall make such recommendations in the way of legislation as he may deem desirable touching the administration of criminal law and the cause of education.

Complying with this requirement, I have only to suggest that the State of Minnesota pursues, in my judgment, a mistaken policy in permitting counsel for a defendant in a criminal cause to have the closing address to the jury. Such a policy is at variance with that which obtains in almost every other state in the Union, and has resulted, I am convinced, in practice, in the frequent miscarriage of justice. The law should be so amended that the criminal practice will accord with the civil practice; that is to say, a party having the affirmative of the issue should be required to make the opening and the closing address.

H. W. CHILDS,  
Attorney General.



# REPORTS OF COUNTY ATTORNEYS.

1894.

## AITKIN COUNTY.

F. W. HALL, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 20; in Municipal and Justice Courts, 18.

CHANGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	1					State prison.
Assault in second degree.....	2		1		1	2	State prison.
Burglary in third degree.....	1	1		6			State prison.
Grand larceny in second degree..	1	2		5		2	State prison.
Indecent assault.....	1				1		
Gambling .....	2	2					Fined \$25.
Totals .....	20	6	1	11	2	4	
In Municipal and Justice Courts—							
Assault in third degree.....	7	6	1			1	Fined \$36.
Petit larceny.....	2	2	1				
Keeping house of ill-fame.....	2	2					
Inmate house of ill-fame.....	6	6					Fined \$45.
Totals .....	18	16	2			1	

Total costs taxed, \$440.80; fines assessed, \$81.00; total collected, \$121.40.

## ANOKA COUNTY.

GEO. H. WYMAN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 18; in Municipal and Justice Courts, 8.

CHANGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1		1				Imp. in county jail.
Assault in third degree.....	1	1					Reform school.
Grand larceny in first degree....	5	1			4	1	
Grand larceny in second degree..	2	1	1				
Petit larceny.....	4	4					
Seduction .....	1			1			
Keeping house of ill-fame.....	2	1		1			
Violating of liquor laws.....	2	1	1				
Totals .....	18	9	3	2	4	1	
In Municipal and Justice Courts—							
Assault in third degree.....	6	5	1			4	
Malicious injury to property....	1	1					
Obscene language.....	1	1					
Totals .....	8	7	1			4	

Total costs taxed, \$381.46; fines assessed, \$75.00; total collected, \$103.95.

## BECKER COUNTY.

C. M. JOHNSTON, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 8; in Municipal and Justice Courts, 33.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	...	...	1	...	...	County jail.
Assault in third degree.....	2	2	...	...	...	...	State prison.
Grand larceny in second degree..	2	1	...	...	1	...	State prison.
Rape .....	1	...	...	...	1	...	State prison.
Violation of liquor law.....	1	1	...	...	...	...	Fined \$25.
Bastardy .....	1	1	...	...	...	...	
Totals .....	8	5	...	1	2	...	
In Municipal and Justice Courts—							
Assault in third degree.....	11	8	...	3	...	...	
Petit larceny.....	13	5	...	8	...	...	Fined and imp. in county jail.
Keeping house of ill-fame.....	2	...	2	...	...	...	Imp. in county jail.
Defrauding hotelkeeper.....	1	1	...	...	...	...	
Abusive language.....	1	1	...	...	...	...	
Cruelty to animals.....	1	1	...	...	...	...	
Violation of game laws.....	2	2	...	...	...	...	
Intoxication .....	1	1	...	...	...	...	
Violating school laws.....	1	1	...	...	...	...	
Totals .....	33	20	2	11	...	...	

Total costs taxed, \$751.43; fines assessed, \$160.00; total collected, \$421.27.

## BIG STONE COUNTY.

F. L. CLIFF, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 7; in Municipal and Justice Courts, 6.

In District Court—							
Maiming .....	1	...	...	1	...	1	State prison.
Grand larceny in second degree..	5	1	...	...	4	...	Fined \$50.
Violation of liquor laws.....	1	1	...	...	...	...	
Totals .....	7	2	...	1	4	1	
In Municipal and Justice Courts—							
Assault in third degree.....	2	1	1	...	...	1	Fined \$10.
Petit larceny.....	1	1	...	...	...	...	County jail.
Violation of game laws.....	2	2	...	...	...	...	Fined \$10.
Willful desertion.....	1	1	...	...	...	...	Fined \$50.
Totals .....	6	5	1	...	...	1	

Total costs taxed, \$88.28; fines assessed, \$120.00; total collected, \$113.95.

## BROWN COUNTY.

M. C. ROBERTSON, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 6; in Municipal and Justice Courts, 30.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	2	...	...	...	2	...	
Violation of liquor laws.....	3	...	...	...	3	...	
Careless use of explosives.....	1	...	1	...	...	...	
Totals .....	6	...	1	...	5	...	
In Municipal and Justice Courts—							
Assault in second degree.....	1	1	...	...	...	...	County jail.
Assault in third degree.....	15	11	...	4	...	...	Fined \$77.05.
Grand larceny in second degree..	4	4	...	...	...	...	Fined and county jail.
Violation of liquor laws.....	1	1	...	...	...	...	One fined \$10, and 1
Drunkenness .....	2	2	...	...	...	...	county jail.
Abusive language.....	4	2	1	1	...	...	Fined \$14.
Run over of section corner.....	1	1	...	...	...	...	Fined \$10.
Carnal knowledge of female	1	...	1	...	...	...	(Preliminary examina-
child .....	1	...	1	...	...	...	tion.)
Refusal to work poll tax.....	1	...	...	...	...	...	
Totals .....	30	22	3	5	...	...	

Total costs taxed, \$372.35; fines assessed, \$111.00; total collected, \$158.26.

## BENTON COUNTY.

J. A. SENN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11; in Municipal and Justice Courts, 25.

In District Court—							
Murder in second degree.....	1	...	...	...	1	...	
Assault in first degree.....	1	...	...	...	1	...	
Burglary in second degree.....	2	...	...	...	6	...	
Gambling .....	6	...	...	...	1	...	
Keeping gambling house.....	1	...	...	...	...	...	
Totals .....	11	...	...	...	11	...	
In Municipal and Justice Courts—							
Assault in third degree.....	9	5	3	1	...	3	Fined \$35.
Petit larceny.....	6	5	1	...	...	...	Fined \$37.
Violation of liquor laws.....	2	2	...	...	...	2	Fined \$20.
Operating steam engine without	2	2	...	...	...	...	Fines remitted.
license .....	1	1	...	...	...	...	Reform school
Incorrigibility .....	1	1	...	...	...	...	Fined \$15.
Indecent language.....	5	5	...	...	...	...	
Totals .....	25	20	4	1	...	10	

Total costs taxed, \$237.11; fines assessed, \$107.00; total collected, \$121.42.

## BLUE EARTH COUNTY.

C. L. BENEDICT, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 18; in Municipal and Justice Courts, 77.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	2	....	1	1	....	....	State prison.
Assault in second degree.....	1	....	....	1	....	....	
Robbery in first degree.....	1	1	....	....	....	1	Fined \$50.
Grand larceny first degree.....	2	....	....	1	1	....	
Violation of liquor laws.....	10	2	....	....	8	....	
Bastardy .....	2	1	....	....	1	....	
Totals .....	18	4	1	3	10	....	
In Municipal and Justice Courts—							
Assault in third degree.....	33	24	4	5	....	1	Fined \$133.
Petit larceny.....	5	2	1	1	2	....	Fined \$25.
Violation of liquor laws.....	1	....	1	....	....	1	
Obscene language.....	14	9	1	4	....	....	Fined \$34.
Drunkenness .....	14	14	....	....	....	14	Fined \$50.
Defrauding hotelkeeper.....	1	1	....	....	....	....	County jail.
Disorderly conduct.....	2	2	....	....	....	....	County jail.
Cruelty to animals.....	2	2	....	....	....	....	Fined \$6.
Neglect of family.....	2	....	2	....	....	....	
Threat to commit felony.....	1	1	....	....	....	....	
Destroying personal property...	1	....	1	....	....	....	
Disturbing the peace.....	1	....	1	....	....	....	
Totals .....	77	55	11	11	....	16	

Total costs taxed, \$295.25; fines assessed, \$298.00; total collected, \$485.95.

## CARLTON COUNTY.

ALPHEUS WOODWARD, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11.

In District Court—							
Manslaughter in second degree..	1	....	1	....	....	....	State prison.
Assault in second degree.....	2	2	....	....	....	....	
Robbery in second degree.....	3	3	....	....	....	....	State prison.
Burglary in second degree.....	1	1	....	....	....	....	State prison.
Grand larceny in second degree..	2	2	....	....	....	....	State prison.
Petit larceny.....	2	1	1	....	....	....	State prison.
Totals .....	11	9	2	....	....	....	



## CLAY COUNTY.

C. A. NYE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 71; in Municipal and Justice Courts, 29.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	8	3	4	...	1	5	State prison.
Assault in third degree.....	15	9	1	1	4	...	County jail.
Robbery in first degree.....	4	1	...	...	3	...	State prison.
Arson in first degree.....	1	...	1	...	...	...	
Burglary in first degree.....	3	...	...	1	2	...	
Grand larceny in first degree...	3	...	...	...	3	...	
Grand larceny in second degree..	15	6	...	...	9	3	
Petit larceny.....	10	7	2	1	...	...	County jail.
Forgery in first degree.....	1	...	...	...	1	...	
Forgery in second degree.....	3	...	...	...	3	...	
Indecent assault.....	1	...	...	...	1	1	
Seduction.....	3	...	...	2	1	...	
Violation of liquor laws.....	4	...	...	2	2	...	
Totals .....	71	30	4	7	30	9	
In Municipal and Justice Courts—							
Assault in third degree.....	11	6	3	2	...	4	Fined \$35.
Petit larceny.....	18	11	3	4	...	6	Imp. county jail.
Totals .....	29	17	6	6	...	10	

Total costs taxed, \$630.06; fines assessed, \$35.00; total collected, \$35.00.

## CHISAGO COUNTY.

P. H. STOLBERG, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 2; in Municipal and Justice Courts, 12.

In District Court—							
Assault in third degree.....	1	...	...	...	1	...	
Grand larceny in third degree..	1	...	...	...	1	...	
Totals .....	2	...	...	...	2	...	
In Municipal and Justice Courts—							
Assault in third degree.....	6	6	...	...	...	...	Two county jail, 4 fined \$50.
Drunkenness .....	4	4	...	...	...	4	Fines \$20.
Disturbing religious services....	2	2	...	...	...	...	Fines \$11.
Totals .....	12	12	...	...	...	4	

Total costs taxed, \$60.49; fines assessed, \$81.00; total collected, \$80.00.

## CROW WING COUNTY.

LEON E. LUM, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 31; in Municipal and Justice Courts, 55.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Assault in first degree.....	2	1	1	1	2	1	
Assault in second degree.....	1	1	1	1	3		
Assault in third degree.....	6	1	1	1	3		
Burglary in third degree.....	2	1	1	1	1		
Grand larceny in first degree....	1	1	1	1	1		
Grand larceny in second degree..	4	1	2	1	2		
Petit larceny.....	28	1	1	1	1		
Forgery in second degree.....	3	1	1	1	2		
Violation of liquor laws.....	5	1	1	1	5		
Disposing of mortgaged property.	1	1	1	1	1		
Practicing medicine without li- cense .....	4	1	4	1	1		
Totals .....	31	4	9	3	15	1	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	15	11	1	3	5		Fines \$235.
Petit larceny.....	18	12	6	1	7		Fines \$240.
Escape from officer.....	1	1	1	1	1		Fined \$10.
Indecent conduct.....	3	3	1	1	1		Fines \$45.
Violation of game laws.....	5	3	2	1	1		Fines \$110.
Indecent exposure.....	1	1	1	1	1		Fined \$25.
Malicious destruction of property	1	1	1	1	1		
Destroying real property.....	1	1	1	1	1		Fined \$25.
Failure to support family.....	1	1	1	1	1		
Obstructing highway.....	1	1	1	1	1		
Drunkenness .....	8	5	3	1	5		Fines \$105.
Totals .....	55	37	15	3	17		

Total costs taxed, \$227.45; fines assessed, \$795.00; total collected, \$278.15.

## CHIPPEWA COUNTY.

J. O. HAUGLAND, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 10; in Municipal and Justice Courts, 13.

<b>In District Court—</b>							
Assault in second degree.....	2	1	1	1	1	1	
Grand larceny in second degree..	3	1	1	1	1	1	State prison.
Rape .....	1	1	1	1	1	1	
Keeping house of ill-fame.....	1	1	1	1	1	1	
Selling mortgaged property.....	1	1	1	1	1	1	
Setting up gambling device.....	1	1	1	1	1	1	Fined \$20.
Abusive language.....	1	1	1	1	1	1	
Totals .....	10	3	3	1	3	2	
<b>In Municipal and Justice Courts—</b>							
Assault in second degree.....	2	2	1	1	2		Fines \$10.
Petit larceny.....	6	3	3	1	1		Fines \$35.
Selling mortgaged property.....	1	1	1	1	1		
Running lottery.....	1	1	1	1	1		Fined \$25.
Drunkenness .....	3	2	1	1	2		County jail.
Totals .....	13	8	5	1	5		

Total costs taxed, \$19.00; fines assessed, \$90.00; total collected, \$84.00.

## DAKOTA COUNTY.

JAMES M. MILLETT, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11; in Municipal and Justice Courts, 124.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	1	1	.....	.....	.....	.....	Death.
Grand larceny in first degree....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree....	3	2	1	.....	.....	.....	State prison.
Indecent assault.....	1	.....	1	.....	.....	.....	
Perjury.....	1	.....	1	.....	.....	.....	Fined \$25.
Keeping house of ill-fame.....	1	1	.....	.....	.....	.....	County jail.
Malicious injury to property.....	1	1	.....	.....	.....	.....	
Carnal knowledge of female child.....	1	.....	.....	.....	1	.....	Fined \$35.
Indecent conduct.....	1	1	.....	.....	.....	.....	
Totals.....	11	7	2	1	1	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	27	19	3	5	.....	6	Fines \$147.
Petit larceny.....	15	8	2	5	.....	1	Fines and imp.
Abusive language.....	3	1	1	1	.....	.....	Fines \$12.50.
Drunkenness.....	79	77	.....	2	.....	79	Fines \$255.
Totals.....	124	105	6	13	.....	86	

Total costs taxed, \$1,447.00; fines assessed, \$459.60; total collected, \$331.50.

## DODGE COUNTY.

SAMUEL LORD, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 21; in Municipal and Justice Courts, 13.

In District Court—							
Assault in second degree.....	5	5	.....	.....	.....	4	Two state prison; 3 fined \$200.
Burglary in third degree.....	6	2	.....	1	3	2	State prison.
Grand larceny in first degree....	4	4	.....	.....	.....	.....	State prison.
Grand larceny in second degree....	3	2	.....	.....	1	2	
Rape.....	1	1	.....	.....	.....	.....	Suicided before sentence
Violation of liquor laws.....	2	1	.....	.....	1	2	Fined \$50.
Totals.....	21	15	.....	1	5	10	
In Municipal and Justice Courts—							
Assault in third degree.....	5	3	2	.....	.....	3	Fines \$10.
Petit larceny.....	2	2	.....	.....	.....	.....	County jail.
Abusive language.....	4	4	.....	.....	.....	4	Fines \$17.
Incorrigibility.....	1	1	.....	.....	.....	.....	Reform school.
Drunkenness.....	1	1	.....	.....	.....	1	Fined \$5.
Totals.....	13	11	2	.....	.....	8	

Total costs taxed, \$115.15; fines assessed, \$282.00; total collected, \$397.15.

## FARIBAULT COUNTY.

J. H. QUINN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 9.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	1	1					State prison for life.
Murder in second degree.....	1		1				
Assault in second degree.....	1	1					Fined \$50.
Grand larceny in second degree..	2	1			1		State reformatory.
Forgery in second degree.....	1				1		
Swindling .....	1	1					Fined \$200.
Offering false evidence.....	1			1			
Abusive language.....	1	1					Fined \$50.
Totals .....	9	5	1	1	2		

## FILLMORE COUNTY.

G. W. ROCKWELL, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 15; in Municipal and Justice Courts, 8.

In District Court—							
Assault in third degree.....	2	2					Fines \$40.
Grand larceny in first degree....	1	1					State prison.
Grand larceny in second degree..	4	4					State prison.
Rape .....	2	1			1		State prison.
Violation of liquor laws.....	5	3		2			Fines \$100.
Practicing medicine without license .....	1		1				
Totals .....	15	11	1	2	1		
In Municipal and Justice Courts—							
Assault in third degree.....	4	4					Fines \$50.
Violation of liquor laws.....	1	1					Fined \$25.
Resisting officer.....	3	3					Fines \$21.
Totals .....	8	8					

Total costs taxed, \$535.05; fines assessed, \$236.00; total collected, \$562.40.



## GOODHUE COUNTY.

S. J. NELSON, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 6; in Municipal and Justice Courts, 30.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Burglary in second degree.....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree.....	3	2	1	.....	.....	.....	State prison.
Forgery in second degree.....	1	1	.....	.....	.....	.....	State prison.
Adultery .....	1	1	.....	.....	.....	.....	Fined \$100.
Totals .....	6	5	1	.....	.....	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	11	9	2	.....	.....	.....	Fines \$58.
Petit larceny.....	8	7	1	.....	.....	.....	Four county jail, 3 fined \$31.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$25.
Cruelty to animals.....	6	6	.....	.....	.....	.....	Two county jail, 4 fined \$260.
Malicious mischief.....	2	1	1	.....	.....	.....	
Abusive language.....	1	1	.....	.....	.....	.....	Fined \$1.
Practicing dentistry without license .....	1	.....	1	.....	.....	.....	
Totals .....	30	25	5	.....	.....	.....	

Total costs taxed, \$711.14; fines assessed, \$475.00; total collected, \$381.89.

## GRANT COUNTY.

EDWARD J. SCOFIELD, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 2; in Municipal and Justice Courts, 5.

In District Court—						
Grand larceny in second degree.....	2	.....	2	.....	.....	.....
Totals .....	2	.....	2	.....	.....	.....
In Municipal and Justice Courts—						
Assault in third degree.....	3	1	1	1	.....	1
Petit larceny.....	2	2	.....	.....	.....	1
Totals .....	5	3	1	1	.....	2

## HENNEPIN COUNTY.

FRANK M. NYE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 280; in Municipal and Justice Courts, 14.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	7	2	1	2	4		State prison.
Murder in second degree.....	2	2					State prison.
Manslaughter in first degree.....	1	1	1				Four state prison, 1
Assault in first degree.....	6	1	1	2	2		ined \$250.
Assault in second degree.....	11	5	1	2	3		Three county jail, 4
Assault in third degree.....	9	7	1	1			ined.
Robbery in first degree.....	12	4	2	6			State prison.
Robbery in second degree.....	2	2					State prison.
Robbery in third degree.....	1	1					State prison.
Arson in first degree.....	1		1				
Arson in second degree.....	1				1		
Burglary in first degree.....	2			2			
Burglary in second degree.....	1			1			
Burglary in third degree.....	29	10	3	8	8		State prison.
Grand larceny in first degree.....	29	4	3	10	12		State prison.
Grand larceny in second degree.....	60	27	8	20	5		State prison.
Petit larceny.....	29	23		1			County jail.
Forgery in second degree.....	10	5		4	1		
Forgery in third degree.....	3	3					State prison.
Rape.....	1		1				
Indecent assault.....	3		1	2			
Perjury.....	2			2			
Bribery.....	3				3		
Abortion.....	2			2			
Blackmail.....	2				2		
Adultery.....	2			2			
Libel.....	2				2		
Seduction.....	1				1		
Carnal abuse of child.....	2		1	1			
Violation of liquor laws.....	9	1		7	1		Fined \$100.
Receiving stolen property.....	6	1		4	1		Fined \$150.
Violation of dairy and food laws.	7	1		6			
Selling or concealing mortgaged property.....	1			1			
Keeping gambling device.....	3	2		1			Fined \$20.
Keeping or visiting opium joint.	3	1		2			
Unlawful entry of building.....	1	1					County jail.
Cruelty to animals.....	1	1					Fined \$10.
Malicious injury to property.....	6	3	1	2			Fines \$40.
Violation of banking laws.....	4			1	3		
Obstructing highway.....	2				2		
Violation of game laws.....	1				1		
Totals.....	280	109	27	92	52		
In Municipal and Justice Courts—							
Assault in third degree.....	10	5	2	3			
Petit larceny.....	4	2	1	1			
Totals.....	14	7	3	4			

Total costs taxed, \$3,403.92; fines assessed, \$1,357.15; total collected, \$713.67.

## HUBBARD COUNTY.

L. W. BILLS, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 4; in Municipal and Justice Courts, 3.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Arson in second degree.....	1	.....	.....	.....	1	.....	
Petit larceny.....	2	.....	.....	.....	2	.....	
Violation of liquor laws.....	1	.....	.....	.....	1	.....	
Totals .....	4	.....	.....	.....	4	.....	
In Justice Court—							
Assault in second degree.....	3	3	.....	.....	.....	.....	Fines \$7.

Total costs taxed, \$52.00; fines assessed, \$7.00; collected, \$27.00.

## HOUSTON COUNTY.

C. S. TRASK, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 9; in Municipal and Justice Courts, 11.

In District Court—							
Assault in third degree.....	1	1	.....	.....	.....	.....	State prison.
Burglary in third degree.....	2	2	.....	.....	1	.....	State prison.
Grand larceny in second degree.	1	.....	1	.....	.....	.....	State prison.
Rape .....	1	1	.....	.....	.....	.....	Fined \$40.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	
Carnal knowledge of female child .....	1	.....	1	.....	.....	.....	
Totals .....	9	6	2	1	.....	.....	
In Municipal and District Courts—							
Assault in third degree.....	6	5	1	.....	.....	.....	Fines \$70.
Petit larceny.....	5	4	.....	1	.....	.....	Fines \$10.
Totals .....	11	9	1	1	.....	.....	

Total costs taxed, \$636.55; fines assessed, \$120.00; total collected, \$306.18.

## ITASCA COUNTY.

C. L. PRATT, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 39; in Municipal and Justice Courts, 24.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in third degree.....	1	1	.....	.....	.....	.....	State prison.
Assault in first degree.....	2	.....	.....	2	.....	.....	.....
Assault in second degree.....	3	1	.....	1	1	.....	State prison.
Robbery in first degree.....	1	.....	.....	.....	1	.....	.....
Robbery in second degree.....	3	1	1	.....	1	.....	State reformatory.
Burglary in third degree.....	3	1	.....	2	.....	.....	State prison.
Grand larceny in first degree....	7	3	1	1	2	.....	State prison.
Grand larceny in second degree....	15	5	1	5	4	.....	State prison.
Keeping house of ill-fame.....	1	.....	.....	1	.....	.....	.....
Aiding prisoner to escape.....	1	.....	.....	1	.....	.....	.....
Jail breaking.....	2	.....	.....	.....	2	.....	.....
Totals .....	39	12	3	13	11	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	10	3	4	3	.....	.....	Fines \$30.
Petit larceny.....	3	1	.....	2	.....	.....	County jail.
Violation of liquor laws.....	5	.....	4	.....	1	.....	.....
Indecent exposure.....	1	1	.....	.....	.....	.....	County jail.
Contempt of court.....	2	1	.....	.....	1	.....	County jail.
Incorrigibility.....	1	1	.....	.....	.....	.....	Reform school.
Defrauding hotelkeeper.....	1	.....	.....	1	.....	.....	.....
Injury to real property.....	1	1	.....	.....	.....	.....	County jail.
Totals .....	24	8	8	6	2	.....	

Total costs taxed, \$1,328.07; fines assessed, \$115.00; total collected, \$52.90.

## ISANTI COUNTY.

H. F. BARKER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 2; in Municipal and Justice Courts, 12.

In District Court—						
Assault in second degree.....	1	.....	.....	.....	1	.....
Grand larceny in second degree....	1	.....	.....	.....	1	.....
Totals .....	2	.....	.....	.....	2	.....
In Justice Courts—						
Assault in third degree.....	6	5	.....	1	.....	Fines \$70.
Petit larceny.....	2	2	.....	.....	.....	Fined \$10.
Drunkenness.....	1	1	.....	.....	.....	Fines \$10.
Destruction of property.....	1	.....	1	.....	.....	.....
Refusing to work poll tax.....	2	1	1	.....	.....	Fined \$5.
Totals .....	12	9	2	1	.....	.....

Total costs taxed, \$272.62; fines assessed, \$90.00; total collected, \$105.50.



## BIENNIAL REPORT

## JACKSON COUNTY.

W. A. FUNK, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 10; in Municipal and Justice Courts, 31.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Manslaughter in second degree..	1	1	.....	.....	.....	.....	State prison.
Assault in second degree.....	4	2	.....	.....	2	.....	Fines \$150.
Arson in second degree.....	1	.....	.....	.....	1	.....	
Grand larceny in first degree....	1	.....	.....	.....	1	.....	State prison.
Grand larceny in second degree..	2	1	1	.....	.....	.....	
Rape .....	1	.....	.....	.....	1	.....	
Totals .....	10	4	1	.....	5	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	9	9	.....	.....	.....	4	Fines \$136.
Petit larceny.....	6	6	.....	.....	.....	2	Fines \$129.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$25.
Miscellaneous misdemeanors.....	15	15	.....	.....	.....	6	Fines \$169.
Totals .....	31	31	.....	.....	.....	12	

Total costs taxed, \$224.88; fines assessed, \$495.00; total collected, \$587.76.

## KANDIYOHI COUNTY.

G. E. QVALE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 16; in Municipal and Justice Courts, 19.

In District Court—							
Robbery in first degree.....	1	1	.....	.....	.....	.....	State prison.
Burglary in first degree.....	1	.....	.....	.....	1	.....	
Burglary in third degree.....	1	.....	.....	.....	1	.....	
Grand larceny in first degree....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	4	.....	.....	1	3	.....	
Adultery .....	2	2	.....	.....	.....	.....	Fines \$200.
Violation of liquor laws.....	4	2	.....	1	1	.....	Fines \$100.
Unlawful entry of building.....	1	1	.....	.....	.....	.....	Fined \$50.
Bastardy .....	1	.....	.....	.....	1	.....	
Totals .....	16	7	.....	3	6	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	9	6	3	.....	.....	.....	Fines \$47.
Petit larceny.....	3	3	.....	.....	.....	.....	Co. jail and fines \$21.
Drunkenness .....	1	1	.....	.....	.....	.....	Fined \$10.
Cruelty to animals.....	1	.....	.....	.....	.....	.....	Fined \$5.
Defrauding innkeeper.....	2	2	.....	.....	.....	.....	Fines \$25.
Injury to real property.....	1	.....	.....	1	.....	.....	
Escape from jail.....	1	1	.....	.....	.....	.....	Fined \$7.
Carrying concealed weapon.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	19	15	4	.....	.....	.....	

Total costs taxed, \$306.90; fines assessed, \$520.00; total collected, \$312.49.

## KANABEC COUNTY.

J. C. POPE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, none; in Municipal and Justice Courts, 20.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In Justice Courts—							
Assault in third degree.....	6	3	1	2	...	2	Fines \$12.
Indecent assault.....	1	1	...	...	...	1	
Cutting timber on state lands...	2	2	...	...	...	...	Fines \$5.
Drunkenness .....	8	8	...	...	...	8	Fines \$45.
Refusing to work poll tax.....	3	2	1	...	...	...	Fines \$2.
Totals .....	20	16	2	2	...	11	

Total costs taxed, \$171.92; fines assessed, \$64.00; total collected, \$75.75.

## LAC QUI PARLE COUNTY.

KRIS O. JERDE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11.

In District Court—							
Assault in first degree.....	1	...	...	...	1	...	
Assault in third degree.....	2	2	...	...	...	...	Fines \$10.
Arson in first degree.....	3	...	3	...	...	...	
Petit larceny.....	1	1	...	...	...	...	Fined \$5.
Perjury .....	2	...	...	2	...	...	
Violation of liquor laws.....	2	...	...	...	2	...	
Totals .....	11	3	3	2	3	...	

## LYON COUNTY.

M. E. MATHEWS, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 6.

In District Court—						
Assault in second degree.....	1	...	...	...	1	...
Grand larceny in second degree..	1	...	1	...	...	...
Forgery in second degree.....	2	...	...	2	...	...
Violation of liquor laws.....	2	...	1	1	...	...
Totals .....	6	...	2	3	1	...

## BIENNIAL REPORT

## LINCOLN COUNTY.

J. A. BIGHAM, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 4; in Municipal and Justice Courts, 3.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	1	1	1	1	1	
Rape .....	1	1	1	1	1	1	
Violation of liquor laws.....	1	1	1	1	1	1	
Selling mortgaged property.....	1	1	1	1	1	1	
Totals .....	4	4	4	4	4	4	
In Municipal and Justice Courts—							
Settling prairie fire.....	1	1	1	1	1	1	
Assault and battery.....	1	1	1	1	1	1	
Threats to kill.....	1	1	1	1	1	1	Bonds to keep peace.
Totals .....	3	1	2	2	2	1	

## LAKE COUNTY.

JOHN DWAN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 4; in Municipal and Justice Courts, 25.

In District Court—							
Rape .....	1	1	1	1	1	1	
Indecent assault.....	1	1	1	1	1	1	
Kidnaping .....	2	2	2	2	2	2	
Totals .....	4	4	4	4	4	4	
In Municipal and Justice Courts—							
Assault in third degree.....	2	2	2	2	2	2	Fines \$45.
Violation of game laws.....	1	1	1	1	1	1	
Drunkenness .....	22	22	22	22	22	22	Co. jail and fines \$11.
Totals .....	25	24	1	1	1	23	

Costs taxed, \$768.50; fines assessed, \$56.00; total collected, \$92.00.

## MURRAY COUNTY.

P. P. SMITH, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 12.

In District Court—							
Maiming .....	1	1	1	1	1	1	State prison.
Burglary in third degree.....	7	2	3	1	1	1	
Grand larceny in second degree..	3	2	2	1	1	1	Fines \$85.
Violation of liquor laws.....	3	2	2	1	1	1	
Totals .....	12	5	3	1	3	3	

Costs taxed, \$213.27; fines assessed, \$85.00; total collected, \$85.00.

## MCLEOD COUNTY.

J. V. V. LEWIS, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11; in Municipal and Justice Courts, 49.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	1			1		County jail.
Assault in second degree.....	1	1					State prison.
Burglary in second degree.....	4	1			3		State prison.
Grand larceny in second degree..	3	1			2		State prison.
Bastardy .....	1				1		
Embezzlement .....	1	1					State prison.
Totals .....	11	4			7		
In Municipal and Justice Courts—							
Assault in third degree.....	25	21	4			3	Fines \$83.
Violation of liquor laws.....	11	10	1			11	Fines \$95.
Violation of game laws.....	11	11					Fines \$333.
Indecent exposure.....	1		1				
Cruelty to animals.....	1	1					Fined \$1.
Totals .....	49	43	6			14	

Costs taxed, \$743.10; fines assessed, \$512.00; total collected, \$753.29.

## MARTIN COUNTY.

F. S. LIVERMORE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 9.

In District Court—						
Assault in second degree.....	1	1				
Arson in second degree.....	1		1			
Grand larceny in second degree..	1	1				
Petit larceny.....	2	2				
Rape .....	1				1	
Seduction .....	1				1	
Selling mortgaged property.....	2		1		1	
Totals .....	9	4	2		3	

## MARSHALL COUNTY.

WM. C. BROWN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 3; in Municipal and Justice Courts, 12.

In District Court—						
Maiming .....	1			1		1
Grand larceny in second degree..	2	1			1	State prison.
Totals .....	3	1		1	1	
In Municipal and Justice Courts—						
Assault in third degree.....	3	2	1			Fines \$5.
Petit larceny.....	8	2	6		1	Fines \$5.
Indecent assault.....	1		1			
Totals .....	12	4	8		1	

Costs taxed, \$268.03; fines assessed, \$10.00; total collected, \$39.29.



## MILLE LACS COUNTY.

J. A. ROSS, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 5; in Municipal and Justice Courts, 4.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	.....	.....	.....	1	.....	State prison.
Arson .....	1	.....	.....	.....	1	.....	
Petit larceny .....	1	.....	.....	.....	1	.....	
Incest .....	1	1	.....	.....	.....	.....	
Violating liquor laws.....	1	.....	1	.....	.....	.....	
Totals .....	5	1	1	.....	3	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	3	2	.....	1	.....	1	Fines \$30.
Abusive and obscene language..	1	1	.....	.....	.....	.....	Fined \$1.
Totals .....	4	3	.....	1	.....	1	

Costs taxed, \$366.62; fines assessed, \$31.00; total collected, \$76.25.

## MEEKER COUNTY.

N. D. MARCH, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 5; in Municipal and Justice Courts, 9.

In District Court—							
Indecent assault.....	1	.....	1	.....	.....	.....	
Violation of liquor laws.....	4	.....	4	.....	.....	.....	
Totals .....	5	.....	5	.....	.....	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	3	3	.....	.....	.....	.....	Fines \$15.
Petit larceny.....	1	1	.....	.....	.....	.....	Fined \$25.
Violation of game laws.....	3	3	.....	.....	.....	.....	Fines \$30.
Profane language.....	1	1	.....	.....	.....	.....	Fined \$5.
Neglect to send child to school..	1	1	.....	.....	.....	.....	Fined \$10.
Totals .....	9	9	.....	.....	.....	.....	

Costs taxed, \$60.27; fines assessed, \$85.00; total collected, \$94.02.

## MOWER COUNTY.

S. D. CATHERWOOD, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 14; in Municipal and Justice Courts, 40.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in third degree.....	4	3	1	.....	.....	.....	State prison.
Burglary in third degree.....	3	3	.....	.....	1	.....	State prison.
Grand larceny in second degree..	3	2	.....	.....	.....	.....	
Forgery in third degree.....	1	.....	1	.....	.....	.....	
Indecent assault.....	1	.....	1	.....	.....	.....	
Violation of liquor laws.....	1	.....	.....	.....	1	.....	
Bastardy .....	1	1	.....	.....	.....	.....	
Totals .....	14	8	3	.....	3	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	14	13	1	.....	.....	10	Fines \$25.
Petit larceny.....	2	2	.....	.....	.....	.....	Fines \$162.50.
Violation of liquor laws.....	17	16	1	.....	.....	.....	Fined \$25.
Cruelty to animals.....	2	1	.....	.....	.....	.....	Fines \$9.
Indecent language.....	1	2	.....	.....	.....	.....	Fines \$60.
Injury to real property.....	4	1	3	.....	.....	.....	
Totals .....	40	35	5	.....	.....	10	

Costs taxed, \$1,026.39; fines assessed, \$351.65; total collected, \$342.82.

## NICOLLET COUNTY.

A. A. STONE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 1; in Municipal and Justice Courts, 29.

In District Court—							
Grand larceny in second degree..	1	1	.....	.....	.....	.....	State prison.
In Municipal and Justice Courts—							
Assault in third degree.....	10	10	.....	.....	.....	5	Co. jail and fines \$32.
Petit larceny.....	9	6	1	2	.....	.....	Fines \$100.
Abusive language.....	5	5	.....	.....	.....	.....	Fines \$10.
Prize fighting.....	2	2	.....	.....	.....	.....	County jail.
Defrauding hotelkeeper.....	2	2	.....	.....	.....	.....	Fines \$6.
Criminal libel.....	1	.....	1	.....	.....	.....	
Totals .....	29	25	2	2	.....	5	

Costs taxed, \$387.95; fines assessed, \$148.00; total collected, \$229.31.

## BIENNIAL REPORT

## NORMAN COUNTY.

PETER SHARPE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 43; in Municipal and Justice Courts, 21.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Robbery in first degree.....	2	2	2	.....	.....	.....	State prison.
Grand larceny in second degree..	1	1	.....	.....	.....	.....	State prison.
Rape .....	1	1	.....	.....	.....	1	Fines \$875.
Incest .....	1	1	.....	.....	.....	.....	
Violation of liquor laws.....	37	21	1	.....	15	.....	
Neglect of official duty.....	1	.....	1	.....	.....	.....	
Totals .....	43	24	4	.....	15	1	
In Municipal and Justice Courts—							
Violation of liquor laws.....	2	1	1	.....	.....	.....	Fines \$59.22.
Assault and battery.....	14	11	1	2	.....	10	Fines \$30.
Drunk and disorderly.....	5	5	.....	.....	.....	5	
Totals .....	21	17	2	2	.....	15	

Costs taxed, \$813.87; fines assessed, \$1,139.22; total collected, \$1,279.41.

## NOBLES COUNTY.

O. W. FREEMAN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 4.

In District Court—							
Assault in first degree.....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	1	1	.....	.....	.....	.....	State prison.
Attacking railroad train.....	2	1	1	.....	.....	.....	State prison.
Totals .....	4	3	1	.....	.....	.....	

Costs taxed, \$231.33.

## OTTER TAIL COUNTY.

M. J. DALY, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 33; in Municipal and Justice Courts, 9.

In District Court—							
Assault in third degree.....	14	8	2	4	.....	.....	State prison.
Robbery in first degree.....	1	1	.....	.....	.....	.....	State prison.
Robbery in second degree.....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in first degree....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	1	1	.....	.....	.....	.....	State prison.
Rape .....	2	1	1	.....	.....	.....	State prison.
Indecent assault.....	1	1	.....	.....	.....	.....	State prison.
Perjury .....	1	.....	.....	1	.....	.....	
Violation of liquor laws.....	8	4	2	2	.....	.....	State prison.
Embezzlement .....	1	1	.....	.....	.....	.....	
Selling mortgaged property.....	2	1	1	.....	.....	.....	
Totals .....	33	20	6	7	.....	.....	
In Justice Courts—							
Petit larceny.....	9	7	2	.....	.....	.....	

## OLMSTED COUNTY.

GEO. W. GRANGER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11; in Municipal and Justice Courts, 56.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	5	4	1	.....	1	.....	Three state prison, 1 fined \$50.
Seduction .....	1	.....	.....	1	.....	.....	
Abduction .....	1	.....	.....	.....	1	.....	County jail.
Stealing .....	1	1	.....	.....	.....	.....	
Carnal knowledge of female child .....	3	2	.....	.....	1	.....	State prison.
Totals .....	11	7	1	1	2	1	
In Municipal and Justice Courts—							
Petit larceny.....	10	7	3	.....	.....	1	Co. jail and fines \$52.50.
Violation of liquor laws.....	1	.....	1	.....	.....	.....	
Intoxication .....	2	2	.....	.....	.....	.....	Fines \$10.
Assault .....	28	20	2	6	.....	9	Fines \$116.65.
Disturbing meeting.....	5	2	1	2	.....	2	Fines \$10.
Defrauding innkeeper.....	1	1	.....	.....	.....	.....	Fined \$3.50.
Abusive language.....	8	8	.....	.....	.....	1	Fines \$38.25.
Incorrigibility .....	1	.....	1	.....	.....	.....	
Totals .....	56	40	8	8	.....	12	

Costs taxed, \$313.33; fines assessed, \$280.90; total collected, \$517.87.

## PINE COUNTY.

ROBERT C. SAUNDERS, COUNTY ATTORNEY.

1894. Records of County Attorney destroyed by fire.

## POLK COUNTY.

A. R. HOLSTON, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 27; in Municipal and Justice Courts, 28.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Assault in second degree.....	3	.....	1	2	.....	.....	
Assault in third degree.....	3	1	1	1	.....	.....	
Grand larceny in first degree....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	15	4	4	6	1	.....	State prison and 1 fined \$50.
Petit larceny.....	3	2	.....	1	.....	.....	County jail.
Forgery in second degree.....	1	.....	.....	1	.....	.....	
Violation of liquor laws.....	1	.....	1	.....	.....	.....	
Totals .....	27	8	7	11	1	.....	
In Municipal and Justice Courts—							
Petit larceny.....	12	4	8	.....	.....	.....	Fines \$30.
Abusive language.....	5	2	2	1	.....	.....	Fines \$25.
Bastardy .....	3	3	.....	.....	.....	.....	Fines \$9.
Extortion .....	3	.....	3	.....	.....	.....	
Libel .....	1	.....	1	.....	.....	.....	
Malicious injury to property....	2	1	1	.....	.....	.....	County jail.
Totals .....	28	10	17	1	.....	.....	

Costs taxed, \$1,169.72; fines assessed, \$120.50; total collected, \$120.50.



## PIPESTONE COUNTY.

C. W. GILMORE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 9; in Municipal and Justice Courts, 9.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Arson in second degree.....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	3	1	.....	1	1	.....	State prison.
Forgery in second degree.....	1	.....	.....	1	.....	.....	.....
Violation of liquor laws.....	2	1	.....	.....	1	.....	County jail.
Malfeasance in office.....	1	1	.....	.....	.....	.....	.....
Accomplice in grand larceny....	1	.....	.....	.....	1	.....	.....
Totals .....	9	4	.....	2	3	.....	.....
In Municipal and Justice Courts—							
Assault in third degree.....	7	3	3	1	.....	2	Fines \$45.
Petit larceny.....	1	1	.....	.....	.....	.....	Fined \$10.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$10.
Totals .....	9	5	3	1	.....	2	.....

Costs taxed, \$53.24; fines assessed, \$65.00; total collected, \$118.24.

## RICE COUNTY.

ROBERT MEE, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 11; in Municipal and Justice Courts, 157.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in first degree....	2	2	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	2	1	.....	.....	.....	.....	State prison.
Adultery .....	2	.....	2	.....	.....	.....	.....
Violation of liquor laws.....	2	.....	.....	1	1	.....	.....
Attacking railroad train.....	3	.....	1	2	.....	.....	.....
Totals .....	11	3	4	3	1	.....	.....
In Municipal and Justice Courts—							
Assault in third degree.....	34	24	10	.....	.....	.....	Co. jail and fines \$119.
Petit larceny.....	23	20	3	.....	.....	.....	Co. jail and fines \$32.
Intoxication .....	84	82	2	.....	.....	.....	Eighty-one county jail, 1 fined \$10.
Abusive language.....	10	8	2	.....	.....	.....	Co. jail and fines \$13.
Threats to kill.....	3	1	2	.....	.....	.....	Fines \$9.
Trespass .....	3	3	.....	.....	.....	.....	.....
Totals .....	157	138	19	.....	.....	.....	.....

Costs taxed, \$1,566.44; fines assessed, \$248.00; total collected, \$482.85.

## ROCK COUNTY.

E. H. CANFIELD, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 4; in Municipal and Justice Courts, 23.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Manslaughter in first degree.....	1	1	.....	.....	.....	.....	State prison.
Rape .....	1	.....	1	.....	.....	.....	.....
Escape from jail.....	1	1	.....	.....	.....	.....	.....
Injury to property.....	1	1	.....	.....	.....	.....	Fined \$150.
Totals .....	4	3	1	.....	.....	.....	
In Justice Courts—							
Assault in third degree.....	6	5	1	.....	.....	.....	Fines \$23.
Pettit larceny.....	2	1	1	.....	.....	.....	Fined \$10.
Violation of liquor laws.....	12	10	2	.....	.....	.....	Fines \$140.
Operating steam boiler without license .....	1	1	.....	.....	.....	.....	Fined \$5.
Injury to property.....	1	1	.....	.....	.....	.....	Fined \$60.
Disposing of mortgaged property.	1	.....	1	.....	.....	.....	.....
Totals .....	23	18	5	.....	.....	.....	

Costs taxed, \$1,189.35; fines assessed, \$388.00; total collected, \$110.70.

## RAMSEY COUNTY.

PIERCE BUTLER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 147.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	5	4	.....	1	.....	.....	Two death, 2 state prison, 1 insane asylum.
Murder in second degree.....	2	1	1	.....	.....	.....	State prison.
Manslaughter in first degree.....	1	.....	.....	1	.....	.....	.....
Manslaughter in second degree..	1	.....	1	.....	.....	.....	.....
Assault in first degree.....	8	5	1	1	1	.....	State prison.
Assault in second degree.....	20	13	6	1	.....	.....	State prison.
Burglary in second degree.....	1	1	.....	.....	.....	.....	State prison.
Burglary in third degree.....	11	8	.....	2	1	.....	State prison.
Grand larceny in first degree....	21	10	1	1	9	.....	State prison.
Grand larceny in second degree..	45	31	6	1	7	.....	State prison.
Forgery in second degree.....	10	8	.....	2	.....	.....	State prison.
Forgery in third degree.....	1	1	.....	.....	.....	.....	State prison.
Indecent assault.....	4	1	.....	3	.....	.....	State prison.
Bribery .....	3	.....	1	2	.....	.....	State prison.
Bigamy .....	1	1	.....	.....	.....	.....	State prison.
Incest .....	1	1	.....	.....	.....	.....	State prison.
Violation of liquor laws.....	2	.....	1	1	.....	.....	.....
Carnal knowledge of female child .....	1	.....	.....	1	.....	.....	.....
Selling adulterated milk.....	1	1	.....	.....	.....	.....	Fined \$25.
Violation of "anti-scalper" laws..	1	.....	.....	1	.....	.....	.....
Violation of game laws.....	2	.....	.....	2	.....	.....	.....
Making false report to bank examiner .....	1	.....	.....	.....	1	.....	.....
Selling obscene pictures.....	1	1	.....	.....	.....	.....	Workhouse.
Swindling with cards.....	2	.....	.....	.....	2	.....	.....
Aiding prisoner to escape.....	1	1	.....	.....	.....	.....	Workhouse.
Totals .....	147	88	18	20	21	.....	

## ST. LOUIS COUNTY.

CHAS. C. TEAR, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 61; in Municipal and Justice Courts, 11.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Manslaughter in first degree.....	1	1	...	...	...	...	Six state prison, 1
Assault in second degree.....	10	7	1	1	1	...	county jail.
Burglary in second degree.....	1	1	...	...	...	...	State prison.
Burglary in third degree.....	6	3	...	2	1	5	State prison.
Grand larceny in first degree.....	4	...	...	...	4	...	
Grand larceny in second degree..	24	17	3	1	3	...	Twelve state prison, 4
Forgery in second degree.....	3	2	1	...	...	...	county jail, 1 fined.
Rape .....	1	1	...	...	...	...	State prison.
Indecent assault.....	2	...	1	1	...	...	State prison.
Perjury .....	1	...	...	...	1	...	
Incest .....	2	2	...	...	...	...	State prison.
Keeping house of ill-fame.....	2	1	1	...	...	...	State prison.
Practicing medicine without li- cense .....	4	1	...	3	...	...	Fined \$50.
Totals .....	61	36	7	8	10	5	
In Municipal and Justice Courts—							
Assault in third degree.....	3	3	...	...	...	3	One county jail, 2
Petit larceny.....	3	3	...	...	...	...	fined \$25.
Violation of game laws.....	2	2	...	...	...	...	County jail.
Fornication .....	2	2	...	...	...	...	Fines \$40.
Rioting .....	1	1	...	...	...	...	Fines \$20.
Totals .....	11	11	...	...	...	3	County jail.

Costs taxed, \$4,626.01; fines assessed, \$175.00; total collected, \$162.60.

## STEARNS COUNTY.

J. D. SULLIVAN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 14; in Municipal and Justice Courts, 18.

In District Court—							
Assault in second degree.....	3	1	2	...	...	...	State prison.
Grand larceny in second degree..	7	6	...	...	1	...	Five state prison, 1
Forgery in second degree.....	3	1	2	...	...	...	fined \$30.
Indecent assault.....	1	1	...	...	...	...	State prison.
Totals .....	14	9	4	...	1	...	State prison.
In Municipal and Justice Courts—							
Assault in third degree.....	12	12	...	...	...	3	Four county jail, 8
Petit larceny.....	6	5	1	...	...	...	fined \$185.
Totals .....	18	17	1	...	...	3	Co. jail and fines \$35.55.

Costs taxed, \$1,180.74; fines assessed, \$250.55; total collected, \$206.79.

## STEELE COUNTY.

J. A. SAWYER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 7; in Municipal and Justice Courts, 26.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	1	.....	.....	1	.....	State prison.
Burglary in third degree.....	1	.....	.....	.....	1	.....	Fined \$25.
Grand larceny in second degree..	3	2	.....	1	.....	.....	State prison.
Petit larceny.....	1	1	.....	.....	.....	.....	
Forgery in second degree.....	1	1	.....	.....	.....	.....	
Totals .....	7	4	.....	1	2	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	14	14	.....	.....	.....	.....	One county jail, 13 fined \$95.
Petit larceny.....	6	6	.....	.....	.....	.....	One Co. jail, 5 fined \$63.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$25.
Obscene language.....	2	2	.....	.....	.....	.....	Fines \$10.
Abducting child from state school	1	1	.....	.....	.....	.....	Fined \$5.
Resisting officer.....	1	1	.....	.....	.....	.....	Fined \$5.
Cruelty to animals.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	26	26	.....	.....	.....	.....	

## SCOTT COUNTY.

JULUS A. COLLIER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 4; in Municipal and Justice Courts, 38.

In District Court—							
Grand larceny in second degree..	1	1	.....	.....	.....	.....	State prison.
Bastardy .....	2	.....	1	1	.....	.....	
Obstructing highway.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	4	2	1	1	.....	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	19	19	.....	.....	.....	.....	Three county jail, 13 fined \$90.
Petit larceny.....	4	4	.....	.....	.....	.....	Three Co. jail, 1 fined \$5
Drunkenness .....	3	3	.....	.....	.....	3	Fines \$28.
Obscene language.....	8	8	.....	.....	.....	.....	Fines \$51.80.
Defrauding liverykeeper.....	1	1	.....	.....	.....	.....	Fined \$5.
Injury to railroad property.....	1	.....	1	.....	.....	.....	
Indecent exposure.....	1	1	.....	.....	.....	.....	Fined \$8.
Operating steam boiler without license .....	1	1	.....	.....	.....	.....	
Totals .....	38	37	1	.....	.....	3	

Costs taxed, \$426.93; fines assessed, \$192.80; total collected, \$465.48.



## BIENNIAL REPORT

## SIBLEY COUNTY.

ED. H. HEUBENER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 6; in Municipal and Justice Courts, 14.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Burglary in third degree.....	1	1					State prison.
Rape .....	1	1					State prison.
Adultery .....	1			1			
Violation of liquor laws.....	2		1	1			
Maintaining nuisance.....							
Totals .....	6	2	2	2			
In Municipal and Justice Courts—							
Assault in third degree.....	5	4	1			1	Fines \$10.
Violation of liquor laws.....	3	3				3	Fines \$20.
Practicing medicine without li- cense .....	1		1				
Abusive language.....	5	1	4				
Totals .....	14	8	6			4	

Costs taxed, \$106.49; fines assessed, \$30.00; total collected, \$91.59.

## STEVENS COUNTY.

S. A. FLAHERTY, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 5.

In District Court—							
Burglary in second degree.....	2	2					State reformatory.
Grand larceny in second degree..	2	2					State prison.
Malicious injury to property.....	1	1					Fined \$50.
Totals .....	5	5					

## SHERBURN COUNTY.

CHARLES S. WHEATON, COUNTY ATTORNEY.

1894. Prosecution in District Court, 4; in Justice court, 3.

In District Court—							
Assault in first degree.....	1					1	
Grand larceny in first degree....	1					1	
Grand larceny in second degree..	1					1	
Indecent assault.....	1					1	
Totals .....	4					4	
In Justice Courts—							
Assault and battery.....	3	3					

## SWIFT COUNTY.

T. F. YOUNG, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 31; in Municipal and Justice Courts, 12.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Maiming .....	1	...	...	1	...	...	State prison.
Arson .....	1	...	1	...	...	...	
Grand larceny in second degree .....	2	...	...	...	...	...	
Rape .....	1	...	...	...	1	...	
Adultery .....	2	...	1	1	...	...	
Seduction .....	1	...	1	...	...	...	
Keeping house of ill-fame .....	2	...	...	...	...	...	
Violation of liquor laws .....	21	4	...	6	11	...	
Totals .....	31	8	3	8	12	...	
In Municipal and Justice Courts—							
Assault in third degree .....	5	3	...	...	...	7	Co. jail and fines \$54. Co. jail and fines \$6.
Petit larceny .....	3	2	1	...	...	...	
Totals .....	12	11	1	...	...	7	

Costs taxed, \$73.60; fines assessed, \$60.00; total collected, \$117.00.

## TRAVERSE COUNTY.

C. H. COLYER, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 8; in Municipal and Justice Courts, 2.

In District Court—							
Assault in first degree .....	2	...	...	1	1	...	
Maiming .....	1	...	...	...	1	...	
Robbery in third degree .....	1	...	...	1	...	...	
Burglary in third degree .....	1	...	1	...	...	...	
Grand larceny in first degree .....	1	...	1	...	...	...	
Grand larceny in second degree .....	1	...	...	...	1	...	
Indecent assault .....	1	...	...	...	1	...	
Totals .....	8	...	2	2	4	...	
In Municipal and Justice Courts—							
Assault in third degree .....	2	1	1	...	...	...	Fined \$1.

Costs taxed, \$110.89; fines assessed, \$1.00; total collected, \$9.40.

## BIENNIAL REPORT

## TODD COUNTY.

E. B. WOOD, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 42.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Manslaughter in first degree.....	1	...	...	1	...	...	Fines \$100.
Assault in third degree.....	2	1	1	...	1	...	State reformatory.
Burglary in third degree.....	2	1	...	...	...	...	State prison.
Grand larceny in second degree..	9	1	...	5	3	...	
Petit larceny.....	1	...	...	...	...	...	
Forgery in second degree.....	1	...	1	...	...	...	
Adultery .....	1	...	...	2	...	...	
Violation of liquor laws.....	5	...	...	5	...	...	
Cutting timber on state lands...	1	...	...	1	...	...	
Contempt of court.....	5	2	...	3	...	...	Fines \$10.
Malicious injury to property....	1	...	...	1	...	...	
Altering ballots.....	1	...	...	1	...	...	
Embezzlement .....	2	...	...	2	...	...	
Bastardy .....	2	1	...	1	...	...	
Abusive language.....	3	2	...	1	...	...	County jail.
Receiving deposits in insolvent bank .....	1	...	...	1	...	...	
Threatening to kill.....	1	...	...	1	...	...	
Totals .....	42	9	2	27	4	...	

## WILKIN COUNTY.

A. W. WOODLAND, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 1.

In District Court—						
Selling mortgaged property.....	1	...	...	...	1	...

## WADENA COUNTY.

FRANK WILSON, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 6.

In District Court—						
Assault in second degree.....	1	1	...	...	1	Fined \$40.
Assault in third degree.....	2	1	1	...	1	Fined \$10.
Grand larceny in second degree..	1	1	...	...	...	State prison.
Forgery in second degree.....	1	1	...	...	1	State prison.
Disposing of mortgaged property.	1	1	...	...	...	Fined \$10.
Totals .....	6	5	1	...	3	

Fines assessed and collected, \$60.00.

## WATONWAN COUNTY.

W. E. ALLEN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 10; in Municipal and Justice Courts, 35.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in third degree.....	1	1	.....	.....	.....	.....	State prison.
Assault in first degree.....	1	1	.....	.....	.....	.....	State prison.
Assault in second degree.....	2	.....	2	.....	.....	.....	.....
Violation of liquor laws.....	4	1	1	2	.....	.....	County jail.
Selling mortgaged property.....	1	.....	.....	.....	1	.....	.....
Receiving stolen property.....	1	1	.....	.....	.....	.....	Fined \$100.
Totals .....	10	4	3	2	1	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	12	11	1	.....	.....	.....	Fines \$238.
Petit larceny.....	4	3	1	.....	.....	.....	One Co. jail, 2 fines \$35.
Violation of liquor laws.....	3	3	.....	.....	3	.....	Fines \$20.
Disorderly conduct.....	8	8	.....	.....	8	.....	Three county jail, 5 fines \$23.
Abusive language.....	5	5	.....	.....	2	.....	Fines \$30.
Defrauding hotelkeeper.....	1	.....	1	.....	.....	.....	.....
Incorrigibility.....	1	1	.....	.....	.....	.....	Reform school.
Cruelty to animals.....	1	.....	1	.....	.....	.....	.....
Totals .....	35	31	4	.....	13	.....	

Costs taxed, \$664.82; fines assessed, \$446.00; total collected, \$807.59.

## WASHINGTON COUNTY.

L. L. MANWARRING, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 6; in Municipal and Justice Courts, 32.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	2	1	1	.....	.....	.....	Reformatory.
Bastardy .....	1	.....	.....	.....	1	.....	.....
Forgery in second degree.....	2	.....	1	.....	1	.....	.....
Carnal knowledge of child.....	1	.....	.....	1	.....	.....	.....
Totals .....	6	1	2	1	2	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	15	11	3	1	.....	2	Co. jail and fines \$75.
Petit larceny.....	9	6	1	2	.....	1	One reform school 5
Extortion .....	1	.....	1	.....	.....	.....	Co. jail and fines \$25.
Abusive language.....	2	1	1	.....	.....	.....	Fined \$5.
Non-support of family.....	2	1	1	.....	.....	.....	.....
Sabbath breaking.....	1	.....	1	.....	.....	.....	.....
Defrauding innkeeper.....	1	.....	1	.....	.....	.....	.....
Malicious injury to property.....	1	1	.....	.....	.....	.....	County jail.
Totals .....	32	20	9	3	.....	3	

Costs taxed, \$97.89; fines assessed, \$105.00; total collected, \$202.89.



## WRIGHT COUNTY.

WM. E. CULKIN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 16; in Municipal and Justice Courts, 26.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	1	1	.....	.....	.....	1	State prison for life.
Assault in second degree.....	2	.....	2	.....	.....	.....	.....
Assault in third degree.....	1	1	.....	.....	.....	1	Fined \$25.
Grand larceny in first degree....	2	2	.....	.....	.....	.....	Reformatory.
Perjury .....	1	.....	.....	1	.....	.....	.....
Violation of liquor laws.....	1	4	.....	3	.....	.....	Two county jail, 2
Willful injury to property.....	2	1	1	.....	.....	.....	fines \$175.
Totals .....	16	3	3	4	.....	2	
In Municipal and Justice Courts—							
Assault in third degree.....	10	9	1	.....	.....	2	Co. jail and fines \$100.
Petit larceny.....	7	5	1	1	.....	1	Co. jail and fines \$55.
Abusive language.....	5	3	2	.....	.....	.....	Fines \$15.
Drunkenness .....	1	1	.....	.....	.....	1	Fined \$15.
Violation of game and fish laws..	3	3	.....	.....	.....	.....	Fines \$15.
Totals .....	26	21	4	1	.....	4	

Costs taxed, \$772.39; fines assessed, \$405.00; total collected, \$409.68.

## WINONA COUNTY.

FRANK L. RANDALL, COUNTY ATTORNEY.

1894. Prosecutions in District Courts, 27; in Municipal and Justice Courts, 189.

In District Court—							
Assault in first degree.....	2	1	.....	1	.....	.....	State prison.
Placing obstruction on railroad tracks .....	3	.....	3	.....	.....	.....	.....
Grand larceny in second degree..	6	5	1	.....	.....	3	State prison.
Keeping house of ill-fame.....	10	1	2	7	.....	.....	State prison.
Renting house for prostitution..	6	.....	.....	6	.....	.....	.....
Totals .....	27	7	6	14	.....	3	
In Municipal and Justice Courts—							
Assault in third degree.....	81	64	2	15	.....	45	Fines \$507.25.
Keeping disorderly house.....	2	2	.....	.....	.....	.....	Fines \$50.
Intoxication .....	75	74	1	.....	.....	74	Fines \$481.62.
Abusive and obscene language...	21	15	1	5	.....	11	Co. jail and fines \$68.20.
Unlawfully entering building....	2	2	.....	.....	.....	.....	County jail.
Defrauding innkeeper.....	3	2	1	.....	.....	.....	Fines \$10.
Cruelty to animals.....	4	2	2	.....	.....	2	Fines \$15.
Inmate house of ill-fame.....	1	1	.....	.....	.....	.....	.....
Totals .....	189	162	7	20	.....	132	

Costs taxed \$2,222.91; fines assessed, \$1,256.07; total collected, \$1,132.19.

## WABASHA COUNTY.

J. F. McGOVERN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 7; in Municipal and Justice Courts, 15.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	1	1	1	1	1	County jail. Fined \$50. Fined \$210.
Grand larceny in second degree..	3	1	1	1	1	1	
Petit larceny.....	1	1	1	1	1	1	
Violation of liquor laws.....	1	1	1	1	1	1	
Receiving stolen property.....	1	1	1	1	1	1	
Totals .....	7	4	2	1	1	1	
In Municipal and Justice Courts—							
Assault in third degree.....	7	7	1	1	1	3	Co. jail and fines \$85. Two Co. jail, 1 fined \$5. Reform school. Fines \$10.
Petit larceny.....	4	3	1	1	1	1	
Incorrigibility .....	1	1	1	1	1	1	
Abusive language.....	2	2	1	1	1	1	
Releasing distrained cattle.....	1	1	1	1	1	1	
Totals .....	15	13	2	1	1	4	

Costs taxed, \$439.45; fines assessed, \$360.00; total collected, \$540.85.

## WASECA COUNTY.

P. McGOVERN, COUNTY ATTORNEY.

1894. Prosecutions in District Court, 9; in Municipal and Justice Courts, 24.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	2	1	1	1	1	1	State prison. Fined. State prison.
Assault in third degree.....	1	1	1	1	1	1	
Burglary in third degree.....	2	1	1	1	1	1	
Grand larceny in second degree..	2	1	1	1	1	1	Fined \$75.
Violation of liquor laws.....	1	1	1	1	1	1	
Obstructing highway.....	1	1	1	1	1	1	
Totals .....	9	5	1	1	4	4	
In Municipal and Justice Courts—							
Assault in second degree.....	13	10	2	1	1	1	Fines \$139. One Co. jail, 1 fined \$5.
Petit larceny.....	2	2	1	1	1	1	
Abusive language.....	6	6	1	1	1	1	Fines \$22.
Malicious mischief.....	1	1	1	1	1	1	County jail. County jail.
Drunkness .....	1	1	1	1	1	1	
Fornication .....	1	1	1	1	1	1	
Totals .....	24	20	3	1	1	1	

Costs taxed, \$435.77; fines assessed, \$241.00; total collected, \$280.88.

## YELLOW MEDICINE COUNTY.

OLE HARTWICK, COUNTY ATTORNEY.

1894. Prosecutions in District Court, none; in Municipal and Justice Courts, 19.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In Municipal and Justice Courts—							
Assault in third degree.....	8	7	1	1	1	3	Fines \$35.
Petit larceny.....	5	4	1	1	1	1	Fines \$211.
Violation of liquor laws.....	2	2	1	1	1	1	Fines \$100.
Fornication .....	2	2	1	1	1	1	Fines \$17.76.
Abusive language.....	1	1	1	1	1	1	Fined \$1.
Obstructing highway.....	1	1	1	1	1	1	Fined \$1.
Totals .....	19	17	2	1	1	4	

Costs taxed, \$226.23; fines assessed, \$65.76; total collected, \$225.08.

# REPORTS OF COUNTY ATTORNEYS.

1895.

## AITKIN COUNTY.

F. W. HALL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 5; in Justice Courts, 21.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	2	2	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	2	1	.....	.....	1	1	State prison.
Indecent assault.....	1	.....	1	.....	.....	.....	
Totals .....	5	3	1	.....	1	1	
In Municipal and Justice Courts—							
Assault in third degree.....	3	3	.....	.....	.....	.....	Fines \$65.
Petit larceny.....	4	3	1	.....	.....	2	Co. jail and fines \$5.
Keeping house of ill-fame.....	11	11	.....	.....	.....	.....	Fines \$50.
Drunk and disorderly.....	3	2	1	.....	.....	2	County jail.
Totals .....	21	19	2	.....	.....	4	

Costs taxed, \$1,675.51; fines assessed, \$120.00; total collected, \$120.01.

## ANOKA COUNTY.

A. E. GIDDINGS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 21; in Municipal and Justice Courts, 28.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	2	1	1	.....	.....	.....	State prison.
Robbery in first degree.....	1	.....	1	.....	.....	.....	
Burglary in third degree.....	2	2	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	7	3	.....	4	.....	.....	Fines \$175.
Petit larceny.....	2	.....	.....	2	.....	.....	
Rape .....	1	.....	1	.....	.....	.....	State prison.
Perjury .....	1	1	.....	.....	.....	.....	
Violation of liquor laws.....	1	.....	.....	1	.....	.....	
Carnal knowledge of child.....	1	.....	1	.....	.....	.....	
Bastardy .....	2	.....	.....	.....	2	.....	
Obstructing railroad track.....	1	.....	1	.....	.....	.....	
Totals .....	21	7	5	7	2	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	8	7	.....	1	.....	2	Fines \$81.71.
Petit larceny.....	3	2	.....	1	.....	.....	Fines \$30.
Violation of game and fish laws..	9	7	.....	2	.....	.....	Fines \$190.
Indecent language.....	1	1	.....	.....	.....	.....	County jail.
Jumping on moving trains.....	2	2	.....	.....	.....	.....	Fines \$5.
Disturbing the peace.....	1	1	.....	.....	.....	.....	Fined \$2.
Gambling .....	2	2	.....	.....	.....	.....	Fines \$10.
Threats to kill.....	1	1	.....	.....	.....	.....	County jail.
Public nuisance.....	1	1	.....	.....	.....	.....	Fined \$20.
Totals .....	28	24	.....	4	.....	2	

Costs taxed, \$613.44; fines assessed, \$473.65; total collected, \$551.70.

## BIG STONE COUNTY.

F. L. CLIFF, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 8; in Municipal and Justice Courts, 10.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	2	.....	.....	.....	2	.....	
Violation of liquor laws.....	5	.....	.....	.....	2	.....	
Receiving stolen property.....	1	.....	.....	1	.....	.....	
Totals .....	8	.....	.....	1	7	.....	
In Municipal and Justice Courts—							
Assault in second degree.....	1	1	.....	.....	.....	.....	Fined \$15.
Assault in third degree.....	2	2	.....	.....	.....	.....	Fines \$15.
Petit larceny.....	3	5	.....	.....	.....	.....	Fines \$100.
Setting prairie fire.....	2	1	.....	1	.....	.....	Fined \$45.
Totals .....	10	9	.....	1	.....	1	

Costs taxed, \$161.33; fines assessed, \$175.00; total collected, \$309.83.

## BROWN COUNTY.

L. G. DAVIS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11; in Municipal and Justice Courts, 11.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	1	.....	1	.....	.....	.....	
Assault in second degree.....	1	.....	.....	.....	1	.....	
Assault in third degree.....	1	1	.....	.....	.....	.....	Fined \$20.
Burglary in second degree.....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in second degree..	1	1	.....	.....	.....	.....	State prison.
Violation of liquor laws.....	2	.....	2	.....	.....	.....	
Selling mortgaged property.....	1	.....	.....	1	.....	.....	
Aiding prisoner to escape.....	1	1	.....	.....	.....	.....	State prison.
Obstructing highway.....	1	.....	1	.....	.....	.....	
Threats to shoot.....	1	.....	.....	.....	1	.....	
Totals .....	11	4	4	1	2	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	5	5	.....	.....	.....	.....	Fines \$30.
Petit larceny.....	2	1	1	.....	.....	.....	Fined \$5.
Violation of liquor laws.....	2	2	.....	.....	.....	.....	Fines \$20.
Incorrigibility .....	1	1	.....	.....	.....	.....	Reform school.
Abusive language.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	11	10	1	.....	.....	.....	

Costs taxed, \$752.17; fines assessed, \$80.00; total collected, \$173.85.



## BECKER COUNTY.

C. M. JOHNSON, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4; in Municipal and Justice Courts, 28.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	1	.....	.....	1	.....	.....	Sentence suspended.
Petit larceny.....	1	1	.....	.....	.....	.....	
Assault with intent to commit rape .....	1	.....	1	.....	.....	.....	
Violation of liquor laws.....	1	.....	.....	.....	1	.....	
Totals .....	4	1	1	1	1	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	5	4	1	.....	.....	.....	One Co. jail, 3 fines \$25. Fines \$185. Fined \$30. Fined \$5. Fined \$10. Fines \$15. County jail.
Petit larceny.....	11	8	1	2	.....	.....	
Cutting timber on state lands...	1	1	.....	.....	.....	.....	
Defrauding innkeeper.....	2	1	1	.....	.....	.....	
Defrauding liverykeeper.....	1	1	.....	.....	.....	.....	
Abusive language.....	3	3	.....	.....	.....	.....	
Setting fires.....	1	1	.....	.....	.....	.....	
Destruction of property.....	2	1	1	.....	.....	.....	
Violation of game and fish laws..	2	.....	2	.....	.....	.....	
Totals .....	28	20	6	2	.....	.....	

Costs taxed, \$374.42; fines assessed, \$270.00; total collected, \$329.17.

## BENTON COUNTY.

J. A. SENN, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 7; in Municipal and Justice Courts, 32.

In District Court—							
Assault in second degree.....	1	.....	1	.....	.....	.....	County jail.
Petit larceny.....	2	2	.....	.....	.....	.....	
Incest .....	1	.....	.....	.....	1	.....	
Keeping house of ill-fame.....	2	.....	.....	.....	2	.....	
Setting fires.....	1	.....	.....	.....	1	.....	
Totals .....	7	2	1	.....	4	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	18	16	1	1	.....	9	Fines \$125. Fines \$10. Fines \$70. Fined \$10. Fines \$13. Fined \$5. Fines \$20.
Petit larceny.....	3	2	1	.....	.....	.....	
Keeping house of ill-fame.....	3	3	.....	.....	.....	.....	
Cruelty to animals.....	1	1	.....	.....	.....	.....	
Abusive language.....	3	3	.....	.....	.....	1	
Drunkenness .....	1	1	.....	.....	.....	1	
Violation of game laws.....	3	2	1	.....	.....	.....	
Totals .....	32	28	3	1	.....	11	

Costs taxed, \$289.75; fines assessed, \$253.00; total collected, \$263.05.

## CARLTON COUNTY.

ALPHEUS WOODWARD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11; in Municipal and Justice Courts, 40.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
<b>In District Court—</b>							
Assault in second degree.....	1	1	.....	.....	1	.....	County jail. Fines \$50.
Robbery in second degree.....	1	1	.....	.....	1	.....	
Petit larceny.....	5	5	.....	.....	.....	.....	
Rape .....	1	.....	1	.....	.....	.....	
Violation of liquor laws.....	3	2	1	.....	.....	.....	
Totals .....	11	7	2	.....	2	.....	
<b>In Municipal and Justice Courts—</b>							
Violation of liquor laws.....	40	37	3	.....	.....	.....	Fines \$165.

## CHISAGO COUNTY.

ED. C. GOTTRY, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 15; in Municipal and Justice Courts, 19.

<b>In District Court—</b>							
Assault in first degree.....	2	1	.....	.....	1	.....	State prison.
Assault in second degree.....	2	1	1	.....	.....	1	
Burglary in third degree.....	3	2	.....	.....	.....	.....	State prison.
Grand larceny in first degree....	1	1	.....	.....	.....	.....	State reformatory.
Forgery in second degree.....	1	.....	.....	.....	3	.....	State prison.
Rape .....	2	1	.....	1	.....	.....	
Bribery .....	1	.....	1	.....	.....	.....	
Carnal knowledge of child.....	1	.....	.....	.....	1	.....	State training school. Fined \$25.
Placing obstruction on railroad track .....	1	1	.....	.....	.....	.....	
Violation of game and fish laws..	1	1	.....	.....	.....	.....	
Totals .....	15	8	2	1	4	.....	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	12	8	4	.....	.....	1	Fines \$50.
Violation of liquor laws.....	6	6	.....	.....	.....	6	Co. jail and fines \$10.
Setting forest fires.....	1	.....	.....	1	.....	.....	
Totals .....	19	14	4	1	.....	7	

Costs taxed, \$480.61; fines assessed, \$85.00; total collected, \$138.46.

## CLAY COUNTY.

C. A. NYE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 58; in Municipal and Justice Courts, 48.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Assault in first degree.....	5	5	.....	.....	.....	2	One county jail, 4 state prison.
Assault in second degree.....	8	6	2	.....	.....	6	State prison.
Assault in third degree.....	2	1	1	.....	.....	.....	County jail.
Burglary in third degree.....	6	4	.....	2	.....	.....	One county jail, 3 state prison.
Grand larceny in first degree...	7	2	.....	1	4	1	State prison.
Grand larceny in second degree..	13	9	.....	.....	4	4	Four county jail, 5 state prison.
Forgery in first degree.....	9	.....	.....	.....	9	.....	
Forgery in second degree.....	7	2	.....	1	4	.....	
Indecent assault.....	1	1	.....	.....	.....	.....	State prison.
Totals .....	58	30	3	4	21	13	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	16	10	2	4	.....	13	Fines \$90.
Petit larceny.....	14	8	4	2	.....	4	Co. jail and fines \$55.
Violation of liquor laws.....	11	7	2	2	.....	.....	Fines \$70.
Illegal voting.....	7	.....	4	3	.....	.....	
Totals .....	48	25	12	11	.....	17	

## CARVER COUNTY.

P. W. MORRISON, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 8; in Municipal and Justice Courts, 9.

<b>In District Court—</b>						
Assault in second degree.....	3	.....	2	.....	1	.....
Assault in third degree.....	2	2	.....	.....	.....	.....
Grand larceny in second degree..	1	.....	.....	.....	1	.....
Violation of liquor laws.....	1	.....	.....	.....	1	.....
Aiding prisoner to escape.....	1	.....	.....	.....	1	.....
Totals .....	8	2	2	.....	4	.....
<b>In Municipal and Justice Courts—</b>						
Assault in third degree.....	8	8	.....	.....	4	Fines \$36.
Petit larceny.....	1	.....	1	.....	.....	.....
Totals .....	9	8	1	.....	4	.....

## COTTONWOOD COUNTY.

A. W. ANNES, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 20; in Municipal and Justice Courts, 8.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Grand larceny in first degree...	1	1	.....	.....	.....	1	State prison.
Violation of liquor laws.....	15	1	.....	14	.....	.....	Fined \$50.
Cruelty to animals.....	3	.....	.....	3	.....	.....	State prison.
Carnal knowledge of child.....	1	1	.....	.....	.....	.....	
Totals .....	20	3	.....	17	.....	1	
In Justice Courts—							
Assault in third degree.....	5	4	1	.....	.....	.....	Fines \$40.
Petit larceny.....	2	2	.....	.....	.....	.....	One reform school, 1 fined \$5.
Keeping gaming table.....	1	.....	1	.....	.....	.....	
Totals .....	8	6	2	.....	.....	.....	

Costs taxed, \$385.91; fines assessed, \$25.00; total collected, \$75.40.

## CHIPPEWA COUNTY.

J. O. HOUGLAND, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 10; in Municipal and Justice Courts, 9.

In District Court—							
Assault in second degree.....	1	1	.....	.....	.....	.....	State prison.
Grand larceny in first degree...	1	.....	.....	.....	1	.....	State prison.
Grand larceny in second degree..	3	2	1	.....	.....	.....	
Forgery in second degree.....	5	1	.....	2	2	.....	
Totals .....	10	4	1	2	3	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	5	5	.....	.....	.....	.....	Fines \$142.
Drunkenness .....	2	2	.....	.....	.....	.....	Fines \$50.
Cruelty to animals.....	1	1	.....	.....	.....	.....	Fined \$25.
Defrauding innkeeper.....	1	1	.....	.....	.....	.....	Fined \$3.
Totals .....	9	9	.....	.....	.....	.....	

Costs taxed, \$477.98; fines assessed, \$220.00; total collected, \$194.80.



## BIENNIAL REPORT

## CROW WING COUNTY.

C. E. CHIPPERFIELD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 21; In Municipal and Justice Courts, 60.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Manslaughter in first degree....	1	1	1	1	1	1	State prison.
Assault in first degree.....	3	1	1	1	1	1	County jail.
Assault in second degree.....	3	1	1	1	1	1	Fined \$50.
Assault in third degree.....	1	1	1	1	1	1	State prison.
Burglary in first degree.....	1	1	1	1	1	1	State prison.
Grand larceny in first degree....	1	1	1	1	1	1	State prison.
Grand larceny in second degree..	1	1	1	1	1	1	Fines \$250.
Forgery in second degree.....	1	1	1	1	1	1	Fines \$250.
Rape .....	1	1	1	1	1	1	Fines \$250.
Violation of liquor laws.....	1	1	1	1	1	1	Fines \$250.
<b>Totals .....</b>	<b>21</b>	<b>10</b>	<b>10</b>	<b>6</b>	<b>5</b>	<b>5</b>	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	19	7	5	7	7	7	Fines \$130.
Petit larceny.....	18	14	2	2	2	2	Fines \$665.
Giving liquor to minor.....	1	1	1	1	1	1	Fines \$390.
Minor misdemeanors.....	22	14	4	4	4	4	Fines \$390.
<b>Totals .....</b>	<b>60</b>	<b>35</b>	<b>12</b>	<b>13</b>	<b>13</b>	<b>13</b>	

Costs taxed, \$185.95; fines assessed, \$1,435.00; total collected, \$465.00.

## DODGE COUNTY.

SAMUEL LORD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 9; in Municipal and Justice Courts, 16.

<b>In District Court—</b>							
Assault in second degree.....	2	1	1	1	1	1	State prison.
Grand larceny in first degree....	1	1	1	1	1	1	County jail.
Grand larceny in second degree..	1	1	1	1	1	1	Fined \$100.
Petit larceny.....	1	1	1	1	1	1	Fined \$100.
Violation of liquor laws.....	3	1	1	1	1	1	Fined \$100.
Cruelty to animals.....	1	1	1	1	1	1	Fined \$100.
<b>Totals .....</b>	<b>9</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>4</b>	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	3	2	1	1	1	1	Fines \$30.
Petit larceny.....	3	3	1	1	1	1	Fines \$25.
Obstructing highway.....	3	2	1	1	1	1	Fines \$25.
Malicious mischief.....	2	2	1	1	1	1	Fines \$25.
Abusive language.....	1	1	1	1	1	1	Fined \$5.
Cruelty to animals.....	1	1	1	1	1	1	Fined \$5.
Defrauding innkeeper.....	2	2	1	1	1	1	Fines \$8.
Drunkenness .....	1	1	1	1	1	1	Fined \$5.
<b>Totals .....</b>	<b>16</b>	<b>14</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>6</b>	

Costs taxed, \$110.09; fines assessed, \$228.00; total collected, \$238.09.

## DAKOTA COUNTY.

WM. HODGSON, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 8; in Municipal and Justice Courts, 119.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Indecent assault.....	1	1	1				
Assault in second degree.....	2	1		1			
Grand larceny in first degree....	1		1				
Grand larceny in second degree..	3	2	1				One county jail, 1 state prison.
Adultery .....	1	1					Fined \$50.
Totals .....	8	4	3	1			
In Municipal and Justice Courts—							
Assault in second degree.....	26	10		16		2	Fines \$32.
Petit larceny.....	13	6		7			Fines \$36.
Failure to support minor.....	1	1					
Slander .....	2	1	1				Fined \$10.
Defrauding liverykeeper.....	1		1				
Keeping house of ill-fame.....	1		1				
Violation of liquor laws.....	5	1		4			Fined \$25.
Vagrancy .....	1	1					County jail.
Abusive language.....	4	2		2			Fines \$5.
Intoxication .....	48	43		5		43	County jail.
Defrauding hotelkeeper.....	3	3					County jail.
Malicious injury to property....	1	1				1	Fined \$5.
Resisting officer.....	1	1					Fined \$10.
Carrying concealed weapons.....	1		1				
Cruelty to animals.....	1		1				
Totals .....	119	80	5	34		46	

Costs taxed, \$993.11; fines assessed, \$114.00; total collected, \$166.90.

## FILLMORE COUNTY.

G. W. ROCKWELL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 6; in Municipal and Justice Courts, 4.

In District Court—							
Grand larceny in first degree...	4	2		2			State prison.
Grand larceny in second degree..	1	1					State prison.
Defacing public records.....	1		1				
Totals .....	6	3	1	2			
In Municipal and Justice Courts—							
Petit larceny.....	2	2					Fines \$30.
Criminal libel.....	1	1					Fined \$25.
Violation of pharmacy law.....	1	1					Fined \$25.
Totals .....	4	4					

Costs taxed, \$26.50; fines assessed, \$80.00; total collected, \$106.50.

## GOODHUE COUNTY.

J. C. McCURE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 40.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Burglary in second degree.....	2	1	.....	1	.....	.....	State prison.
Burglary in third degree.....	1	1	.....	.....	.....	.....	State reformatory.
Petit larceny.....	8	8	.....	.....	.....	.....	Six training school, 1 reformatory and 1 fined \$80.
Disturbing public meeting.....	15	12	.....	3	.....	12	Fines \$124.32.
Seduction .....	1	.....	.....	1	.....	.....	.....
Drunkenness .....	2	2	.....	.....	.....	2	County jail.
Threat to injure person.....	1	1	.....	.....	.....	.....	County jail.
Interference with railroad property .....	3	3	.....	.....	.....	3	Fines \$24.
Excluding pupil from public school .....	3	.....	3	.....	.....	.....	.....
Receiving stolen property.....	1	1	.....	.....	.....	.....	County jail.
Indecent exposure.....	1	1	.....	.....	.....	1	County jail.
Assault with intent to do bodily harm .....	1	.....	1	.....	.....	.....	.....
Abusive language.....	1	1	.....	.....	.....	1	Fined \$10.
Totals .....	40	31	4	5	.....	19	

Costs taxed, \$374.69; fines assessed, \$114.00; total collected, \$323.85.

## GRANT COUNTY.

MICHAEL CASEY, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4; in Municipal and Justice Courts, 10.

In District Court—							
Assault in second degree.....	2	1	.....	.....	1	1	Fined \$50.
Grand larceny in second degree..	1	.....	.....	1	.....	.....	.....
Removing mortgaged property..	1	.....	1	.....	.....	.....	.....
Totals .....	4	1	1	1	1	1	
In Justice Courts—							
Assault in third degree.....	5	2	.....	3	.....	5	Fines \$25.
Petit larceny.....	5	4	1	.....	.....	4	Fines \$68.
Totals .....	10	6	1	3	.....	9	

Costs taxed, \$197.53; fines assessed, \$143.00; total collected, \$163.00.

## HOUSTON COUNTY.

C. S. TRASK, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4; in Municipal and Justice Courts, 11.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	.....	.....	.....	1	.....	State reformatory.
Assault in third degree.....	1	.....	1	.....	.....	.....	
Burglary in second degree.....	1	1	.....	.....	.....	.....	
Grand larceny in second degree..	1	.....	.....	1	.....	.....	
Totals .....	4	1	1	1	1	.....	
In Justice Courts—							
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$5.
Assault in third degree.....	6	6	.....	.....	.....	3	One Co. jail, 5 fines \$50.
Petit larceny.....	2	2	.....	.....	.....	.....	One Co. jail, 1 fined \$6.
Abusive and obscene language..	1	1	.....	.....	.....	1	Fined \$5.
Drunk and disorderly.....	2	2	.....	.....	.....	2	County jail.
Totals .....	12	12	.....	.....	.....	6	

Costs taxed, \$284.72; fines assessed, \$66.00; total collected, \$240.57.

## HUBBARD COUNTY.

L. W. BILLS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 3; in Municipal and Justice Courts, 7.

In District Court—							
Petit larceny.....	2	2	.....	.....	.....	.....	Fines \$24.
Violation of liquor laws.....	1	.....	.....	.....	1	.....	
Totals .....	3	2	.....	.....	1	.....	
In Justice Courts—							
Assault in third degree.....	1	1	.....	.....	.....	.....	Fined \$1.
Petit larceny.....	3	3	.....	.....	.....	.....	Fines \$36.
Violation of game laws.....	2	2	.....	.....	.....	.....	County jail.
Defrauding innkeeper.....	1	1	.....	.....	.....	.....	County jail.
Totals .....	7	7	.....	.....	.....	.....	

Costs taxed, \$11.50; fines assessed, \$61.00; total collected, \$72.50.



## BIENNIAL REPORT

## HENNEPIN COUNTY.

FRANK M. NYE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 280; in Municipal and Justice Courts, 20.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	4	2	1	1	.....	.....	One death, 1 state pris- on for life.
Manslaughter in first degree....	2	2	.....	.....	.....	.....	State prison.
Assault in first degree.....	8	.....	1	5	.....	.....	
Assault in second degree.....	3	.....	1	2	.....	.....	County jail and fines.
Assault in third degree.....	14	9	2	3	.....	.....	State prison.
Robbery in first degree.....	1	1	.....	.....	.....	.....	State prison.
Robbery in second degree.....	3	3	.....	.....	.....	.....	
Arson in second degree.....	1	.....	1	.....	.....	.....	
Burglary in first degree.....	6	.....	.....	6	.....	.....	State prison.
Burglary in second degree.....	6	5	.....	1	.....	.....	State prison.
Burglary in third degree.....	38	19	5	9	.....	.....	State prison.
Grand larceny in first degree....	23	4	2	12	.....	.....	Twenty-six state prison,
Grand larceny in second degree....	63	34	5	17	.....	.....	7 Co. jail, 1 fined \$25.
Petit larceny.....	17	16	.....	1	.....	.....	Fifteen county jail, 1 fined \$130.
Forgery in second degree.....	20	8	3	7	2	.....	State prison.
Forgery in third degree.....	6	6	.....	.....	.....	.....	State prison.
Rape.....	2	1	.....	1	.....	.....	State prison.
Indecent assault.....	3	2	.....	1	.....	.....	One state prison, 1 re- form school.
Carnal abuse of child.....	3	1	1	.....	1	.....	State prison.
Bribery.....	4	.....	.....	3	1	.....	
Receiving stolen property.....	5	2	.....	2	1	.....	One state prison, 1 fined \$525.
Unlawfully entering building....	2	2	.....	.....	.....	.....	State prison.
Exhibiting false paper to bank examiner.....	1	.....	1	.....	.....	.....	
Incest.....	1	.....	.....	.....	1	.....	
Seduction.....	2	.....	.....	1	1	.....	
Abduction.....	1	1	.....	.....	.....	.....	State prison.
Violation of liquor laws.....	17	5	.....	8	4	.....	County jail and fines \$259.68.
Obstructing highway.....	4	.....	.....	3	1	.....	
Violation of game laws.....	1	.....	.....	1	.....	.....	
Rescuing prisoner.....	1	.....	.....	1	.....	.....	
Blackmail.....	1	.....	.....	1	.....	.....	
Injury to property.....	4	2	.....	1	.....	.....	County jail.
Libel.....	3	1	.....	2	.....	.....	
Selling tobacco to minor.....	4	3	.....	1	.....	.....	Fines \$50.
Gambling.....	1	1	.....	.....	.....	.....	Fined \$10.
Receiving deposits in insolvent bank.....	2	.....	.....	2	.....	.....	
Swindling.....	1	1	.....	.....	.....	.....	County jail.
Disturbing meeting.....	1	.....	1	.....	.....	.....	
Indecent language.....	1	.....	.....	1	.....	.....	
Totals.....	280	131	24	93	32	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	8	6	.....	2	.....	.....	Fines \$225.50.
Violation of liquor laws.....	2	.....	.....	2	.....	.....	
Violation of game laws.....	5	3	2	.....	.....	.....	Two county jail, 1 fined \$8.76.
Injury to property.....	2	.....	2	.....	.....	.....	
Disturbing meeting.....	2	.....	2	.....	.....	.....	
Pointing firearm at person.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals.....	20	10	6	4	.....	.....	

Costs taxed, \$4,813.89; fines assessed, \$1,253.94; total collected, \$598.94.

## ITASCA COUNTY.

CHESTER L. PRATT, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 50; in Municipal and Justice Courts, 23.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	3	.....	.....	1	2	.....	
Assault in first degree.....	2	.....	.....	1	1	.....	
Assault in second degree.....	3	.....	.....	2	1	.....	
Maiming .....	1	.....	.....	.....	1	.....	
Robbery in first degree.....	2	.....	1	.....	1	.....	
Burglary in third degree.....	6	1	.....	.....	5	.....	State prison.
Grand larceny in first degree...	7	2	.....	.....	5	.....	State prison.
Grand larceny in second degree..	8	.....	2	.....	6	.....	
Petit larceny.....	1	.....	.....	.....	1	.....	
Forgery in second degree.....	3	.....	.....	.....	3	.....	
Forgery in third degree.....	1	1	.....	.....	.....	.....	State prison.
Perjury .....	1	.....	.....	.....	.....	.....	
Violation of liquor laws.....	4	.....	.....	3	1	.....	
Injury to personal property....	1	.....	.....	.....	1	.....	
Receiving stolen property.....	1	.....	.....	.....	1	.....	
Accessory to felony.....	1	.....	.....	.....	1	.....	
Jail breaking.....	5	.....	.....	.....	5	.....	
Totals .....	50	4	3	7	36	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	1	1	.....	.....	.....	.....	Fined \$10.
Petit larceny.....	2	1	3	4	.....	.....	Fined \$25.
Violation of liquor laws.....	2	.....	2	.....	.....	.....	
Receiving stolen property.....	1	.....	1	.....	.....	.....	
Resisting officer.....	1	1	.....	.....	.....	.....	Fined \$50.
Violation of game laws.....	9	2	7	.....	.....	.....	
Incorrigibility .....	1	1	.....	.....	.....	.....	Reform school.
Totals .....	23	6	13	4	.....	.....	

Costs taxed, \$661.55; fines assessed, \$85.00; total collected, \$13.20.

## ISANTI COUNTY.

H. F. BARKER, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4.

In District Court—						
Grand larceny in second degree..	2	2	.....	.....	.....	State prison.
Carnal knowledge of child.....	2	1	.....	.....	1	State prison.
Totals .....	4	3	.....	.....	1	.....

## BIENNIAL REPORT

## JACKSON COUNTY.

W. A. FUNK, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 13; in Municipal and Justice Courts, 50.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Petit larceny.....	2	.....	.....	2	.....	2	State prison.
Assault in second degree.....	2	.....	.....	2	.....	2	
Grand larceny in second degree..	4	4	.....	.....	.....	.....	Fines \$350.
Violation of liquor laws.....	5	4	.....	1	.....	.....	
Totals .....	13	8	.....	5	.....	2	
In Municipal and Justice Courts—							
Assault in third degree.....	11	9	2	.....	.....	.....	Fines \$120.
Petit larceny.....	5	5	.....	.....	.....	3	Fines \$55.
Miscellaneous misdemeanors.....	34	30	4	.....	.....	30	Fines \$204.
Totals .....	50	44	6	.....	.....	33	

Costs taxed, \$309.80; fines assessed, \$729.00; total collected, \$742.40.

## KANABEC COUNTY.

J. C. POPE, COUNTY ATTORNEY.

1894. Prosecutions in Justice Courts, 12.

In Justice Courts—							
Assault in third degree.....	6	6	.....	.....	.....	6	Three county jail, 3 fines \$55.
Petit larceny.....	2	2	.....	.....	.....	.....	County jail.
Indecent assault.....	1	1	.....	.....	.....	.....	County jail.
Interfering with dam.....	1	.....	1	.....	.....	.....	
Violation of game laws.....	2	1	1	.....	.....	.....	County jail.
Totals .....	12	10	2	.....	.....	.....	

Costs taxed, \$83.95; fines assessed, \$55.00; total collected, \$59.80.

## KANDIYOHI COUNTY.

A. F. NORDEEN, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 15; in Municipal and Justice Courts, 29.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in third degree.....	1		1				State prison.
Burglary in first degree.....	1	1					
Burglary in third degree.....	1		1				
Grand larceny in second degree..	5	2	2	1			State prison.
Petit larceny.....	28	2					Fines \$56.
Violation of liquor laws.....	5	1	3	1			Fined \$20.
Totals .....	15	6	7	2			
In Justice Courts—							
Assault in third degree.....	8	7	1				Fines \$24.
Petit larceny.....	2		2				
Violation of liquor laws.....	2	2					Fines \$30.
Injury to personal property.....	5	1	4				Fines \$10.
Auctioneer without license.....	1	1					Fined \$1.
Injury to highway.....	2		2				
Bonds to keep the peace.....	2	1	1				
Abusive language.....	2	1	1				
Aiming firearms at human being.	1	1					
Defrauding innkeeper.....	3	2	1				Fines \$11.
Incorrigibility .....	1		1				
Totals .....	29	16	13				

Costs taxed, \$1,004.93; fines assessed, \$152.00; total collected, \$143.85.

## LYON COUNTY.

V. B. SEWARD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 21; in Municipal and Justice Courts, 16.

In District Court—							
Assault in second degree.....	3		1	1	1		State prison.
Grand larceny in second degree..	1	1					
Forgery in second degree.....	2			2			
Violation of liquor laws.....	15	8			7		Fines \$335.
Totals .....	21	9	1	3	8		
In Municipal and Justice Courts—							
Assault in third degree.....	8	5	2	1		3	Two county jail, 3 fines \$45.
Petit larceny.....	3	2	1				County jail.
Obscene language.....	1	1				1	Fined \$15.
Intoxication .....	4	4				4	County jail.
Totals .....	16	12	3	1		8	

Costs taxed, \$456.72; fines assessed, \$440.00; total collected, \$342.61.



## BIENNIAL REPORT

## LINCOLN COUNTY.

J. A. BIGHAM, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 6; in Municipal and Justice Courts, 6.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	.....		1	.....		
Grand larceny in first degree....	2	.....		1	1		
Rape .....	2	.....		1	1	1	
Violation of liquor laws.....	1	1	.....				Fined \$50.
Totals .....	6	1	.....	3	2	1	
In Municipal and Justice Courts—							
Assault in second degree.....	2	2	.....				
Petit larceny.....	1	.....	1				
Abusive and obscene language..	3	3	.....				Fines \$15.
Totals .....	6	5	1	.....			

## LAKE COUNTY.

JOHN DWAN, COUNTY ATTORNEY.

1895. Prosecutions in Justice Court, 104.

In Justice Courts—							
Assault in third degree.....	2	2	.....			1	Fines \$19.
Drunk and disorderly .....	85	85	.....			85	Fines \$151.
Keeping disorderly house.....	12	12	.....				Fines \$64.
Incorrigibility .....	1	1	.....				Reform school.
Violating village ordinance.....	4	4	.....				Fines \$9.
Totals .....	104	104	.....				

Costs taxed, \$305.26; fines assessed, \$248.00; total collected, \$291.40.

## LAC QUI PARLE COUNTY.

H. L. HAYDEN, COUNTY ATTORNEY.

1895 Prosecutions in District Court, 7; in Municipal and Justice Courts, 23.

In District Court—							
Assault in second degree.....	1	1	.....				Fined \$50.
Violation of liquor laws.....	4	2	1	1	.....		Fines \$100.
Disposing of mortgaged property	2	.....		2	.....		
Totals .....	7	3	1	3	.....		
In Municipal and Justice Courts—							
Assault in third degree.....	11	10	1	.....		4	Fines \$41.
Petit larceny.....	4	4	.....				Two Co. jail, 2 fines \$8.
Disorderly conduct.....	2	2	.....				Fines \$40.
Selling mortgaged property.....	1	.....	1	.....			
Obstructing highway.....	5	1	2	2	.....		
Totals .....	23	17	3	3	.....	4	

## LE SUEUR COUNTY.

C. C. KOLLARS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 37; in Municipal and Justice Courts, 97.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	.....	.....	.....	1	.....	State prison.
Assault in second degree.....	2	.....	.....	.....	2	.....	
Assault in third degree.....	5	.....	2	2	1	.....	
Burglary in third degree.....	1	1	.....	.....	.....	.....	
Grand larceny in first degree.....	22	.....	1	21	.....	.....	
Grand larceny in second degree.....	1	.....	1	.....	.....	.....	State prison. County jail.
Indecent assault.....	1	1	.....	.....	.....	.....	
Violation of liquor laws.....	1	1	.....	.....	.....	.....	
Violation of game laws.....	1	.....	.....	.....	1	.....	
Abusive language.....	2	.....	.....	1	1	.....	
Totals .....	37	3	4	24	6	.....	
In Justice Courts—							
Assault in third degree.....	37	28	4	5	.....	6	Fines \$105.
Petit larceny.....	13	4	2	7	.....	.....	Fines \$65.
Violation of liquor laws.....	3	1	1	1	.....	.....	Fined \$25.
Resisting officer.....	1	1	.....	.....	.....	.....	Fined \$10.
Drunk and disorderly.....	18	18	.....	.....	.....	18	Fines \$94.
Abusive language.....	13	7	3	3	.....	.....	Fines \$35.
Violation of game laws.....	7	5	1	1	.....	1	Fines \$125.
Malicious prosecution.....	1	1	.....	.....	.....	.....	Fined \$25.
Disturbing public meeting.....	4	.....	4	.....	.....	.....	
Totals .....	97	65	15	17	.....	25	

Costs taxed, \$2,217.14; fines assessed, \$484.04; total collected, \$699.91.

## MOWER COUNTY.

S. D. CATHERWOOD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11; in Municipal and Justice Courts, 9.

In District Court—							
Assault in second degree.....	1	1	.....	.....	.....	.....	Fined \$100.
Grand larceny in second degree.....	5	4	1	.....	.....	1	State prison.
Keeping house of ill-fame.....	1	1	.....	.....	.....	.....	Fined \$10.
Violation of game laws.....	1	1	.....	.....	.....	.....	Fined \$40.
Obstructing railroad.....	2	2	.....	.....	.....	2	Fines \$200.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$50.
Totals .....	11	10	1	.....	.....	3	
In Municipal and Justice Courts—							
Assault in third degree.....	5	4	1	.....	.....	.....	Fines \$30.
Obscene language.....	3	3	.....	.....	.....	1	Fines \$5.
Disturbing meeting.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	9	8	1	.....	.....	1	

Costs taxed, \$382.64; fines assessed, \$440.00; total collected, \$403.58.

## MEEKER COUNTY.

ALBERT F. FOSTER, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 9; in Municipal and Justice Courts, 54.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	...	...	...	1	...	Reformatory.
Grand larceny in first degree....	3	2	1	...	...	...	Reformatory.
Grand larceny in second degree..	3	2	1	...	...	...	Reformatory.
Forgery in second degree.....	1	1	...	...	...	...	
Practicing medicine without li- cense .....	1	...	1	...	...	...	
Totals .....	9	5	3	...	1	...	
In District Court—							
Petit larceny.....	1	1	...	...	...	...	Fined \$5.
Assault and battery.....	6	6	...	...	...	...	Fines \$22.
Abusive language.....	4	4	...	...	...	...	Fines \$28.
Drunkenness .....	43	41	2	...	...	41	Fines \$163.
Totals .....	54	52	2	...	...	41	

Costs taxed, \$526.12; fines assessed, \$218.00; total collected, \$268.00.

## MURRAY COUNTY.

H. C. GRASS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 5; in Municipal and Justice Courts, 12.

In District Court—							
Assault in first degree.....	3	1	2	...	...	2	County jail.
Grand larceny in second degree..	2	2	...	...	...	1	One county jail, 1 state prison.
Totals .....	5	3	2	...	...	3	
In Justice Courts—							
Assault in third degree.....	5	1	4	...	...	2	Fined \$10.
Petit larceny.....	2	...	2	...	...	1	
Violation of game laws.....	2	1	1	...	...	...	Fined \$30.
Injury to real property.....	1	...	1	...	...	...	
Obscene language.....	1	1	...	...	...	...	Fined \$10.
Obstructing highway.....	1	...	1	...	...	...	
Totals .....	12	3	9	...	...	3	

Costs taxed, \$302.68; fines assessed, \$50.04; total collected, \$56.04.

## MARSHALL COUNTY.

WM. C. BROWN, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 6; in Justice Courts, 19.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	1	1	.....	.....	.....	.....	Fined \$100.
Violation of liquor laws.....	2	2	.....	.....	.....	.....	Fines \$175.
Bastardy .....	1	.....	.....	.....	.....	.....	
Malicious destruction of property	1	.....	1	.....	.....	.....	
Totals .....	6	5	1	.....	.....	.....	
In Justice Courts—							
Assault in second degree.....	7	5	2	.....	.....	4	Fines \$25.
Petit larceny.....	12	6	2	4	.....	2	Fines \$35.
Totals .....	19	11	4	4	.....	6	

## MILLE LACS COUNTY.

J. A. ROSS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11; in Municipal and Justice Courts, 9.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Assault in second degree.....	2	1	.....	1	.....	.....	State prison.
Assault in third degree.....	1	.....	.....	1	.....	.....	
Grand larceny in second degree..	3	.....	1	1	1	.....	Fines \$85.
Petit larceny.....	4	3	1	.....	.....	.....	
Illegal voting.....	1	.....	.....	.....	1	.....	
Totals .....	11	4	2	3	2	.....	
In Justice Courts—							
Assault in second degree.....	7	6	.....	1	.....	3	Fines \$31.
Violation of liquor laws.....	2	2	.....	.....	.....	.....	Fines \$60.
Totals .....	9	8	.....	1	.....	3	

Costs taxed, \$171.41; fines assessed, \$176.00; total collected, \$212.82.



## McLEOD COUNTY.

F. R. ALLEN, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 5; in Municipal and Justice Courts, 34.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Burglary in third degree.....	1	1	1				Reformatory.
Grand larceny in second degree..	1	1					
Perjury .....	1		1				Fined \$250.
Mingling poison with food.....	1	1					
Malicious injury to property....	1			1		1	
Totals .....	5	2	2	1		1	
<b>In Justice Courts—</b>							
Assault in third degree.....	16	12	1	3		5	Fines \$62.
Petit larceny.....	9	6	1	2			Fines \$126.
Drunkenness .....	5	5				5	Fines \$55.
Changing mark on section corner	1	1					Fined \$5.
Malicious injury to property....	2	1	1			2	Fined \$2.
Refusing to work poll tax.....	1	1					Fined \$2.
Totals .....	34	26	3	5		12	

Costs taxed, \$527.29; fines assessed, \$502.00; total collected, \$527.52.

## NICOLLET COUNTY.

A. A. STONE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 7; in Municipal and Justice Courts, 13.

<b>In District Court—</b>						
Assault in second degree.....	1		1			
Grand larceny in first degree....	3		2	1		
Grand larceny in second degree..	2	2				State prison.
Indecent assault.....	1	1				Fined \$100.
Totals .....	7	3	3	1		
<b>In Justice Courts—</b>						
Assault in third degree.....	9	7	2			Fines \$82.60.
Violation of game laws.....	2	2				Fines \$25.
Abusive language.....	1	1				Fined \$15.
Writing threatening letter.....	1		1			
Totals .....	13	10	3			

Costs taxed, \$219.98; fines assessed, \$227.60; total collected, \$324.65.

## NORMAN COUNTY.

ALEX MACKEL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 5; in Municipal and Justice Courts, 18.

CHARGED WITH	Prosecutions.	Convictors.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in second degree..	1	...	...	...	1	1	
Perjury .....	1	...	...	1	...	1	
Violation of liquor laws.....	1	...	...	1	...	...	
Sodomy .....	1	...	1	...	...	...	
Fornication .....	1	...	...	1	...	...	
Totals .....	5	...	1	3	1	2	
In Municipal and Justice Courts—							
Assault in third degree.....	11	7	4	...	...	4	Fines \$28.
Petit larceny.....	3	3	...	...	...	3	Fines \$45.
Violation of liquor laws.....	4	4	...	...	...	...	County jail.
Totals .....	18	14	4	...	...	7	

Costs taxed, \$315.87; fines assessed, \$73.00; total collected, \$157.69.

## NOBLES COUNTY.

O. W. FREEMAN COUNTY ATTORNEY.

Prosecutions in District Court, 5.

CHARGED WITH	Prosecutions.	Convictors.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	...	...	...	1	...	
Grand larceny in first degree...	1	...	...	1	...	...	
Grand larceny in second degree..	2	2	...	...	...	...	One reformatory, 1 re-form school.
Violation of liquor laws.....	1	...	1	...	...	...	
Totals .....	5	2	1	1	1	...	

Costs taxed, \$42.10.

## OTTER TAIL COUNTY.

M. J. DALY, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 20; in Municipal and Justice Courts, 34.

CHARGED WITH	Prosecutions.	Convictors.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in third degree.....	8	4	3	1	...	...	
Grand larceny in second degree..	2	2	...	...	...	...	
Petit larceny.....	2	2	...	...	...	...	
Assault with intent to commit rape .....	1	1	...	...	...	...	State prison.
Adultery .....	1	1	...	...	...	...	State prison.
Keeping house of ill-fame.....	1	1	...	...	...	...	
Violation of liquor laws.....	4	4	...	...	...	...	
Libel .....	1	...	1	...	...	...	
Totals .....	20	15	4	1	...	...	
In Justice Courts—							
Assault in third degree.....	20	16	3	1	...	4	
Petit larceny.....	14	12	2	...	...	...	
Totals .....	34	28	5	1	...	4	

## BIENNIAL REPORT

## OLMSTED COUNTY.

GEO. W. GRANGER, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 18; in Municipal and Justice Courts, 23.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
<b>In District Court—</b>							
Burglary in third degree.....	2	1	1	1	1	.....	Fines \$175.
Grand larceny in second degree.....	4	1	1	1	2	.....	
Seduction .....	1	1	1	1	1	.....	
Violation of liquor laws.....	10	3	1	1	7	.....	
Bastardy .....	1	1	1	1	1	.....	
Totals .....	18	4	1	3	10	.....	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	13	8	3	2	.....	.....	Fines \$90.05.
Petit larceny.....	3	1	1	2	.....	.....	Fined \$20.
Obstructing highway.....	2	1	1	.....	.....	.....	Fined \$5.
Disturbing meeting.....	1	1	1	.....	.....	.....	
Abusive language.....	1	1	1	.....	.....	.....	
Violation of health laws.....	1	1	1	.....	.....	.....	Fined \$5.
Intoxication .....	1	1	1	.....	.....	.....	
Injury to property.....	1	1	1	.....	.....	.....	
Totals .....	23	13	6	4	.....	.....	

Costs taxed, \$208.68; fines assessed, \$295.05; total collected, \$417.70.

## PINE COUNTY.

L. H. McKUSICK, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
<b>In District Court—</b>							
Murder in first degree.....	2	1	1	.....	.....	.....	State prison for life.
Manslaughter in first degree.....	1	1	1	.....	1	.....	
Assault in second degree.....	1	1	1	.....	1	.....	
Grand larceny in first degree.....	1	1	1	.....	1	.....	
Keeping house of ill-fame.....	6	.....	.....	.....	6	.....	
Totals .....	11	1	1	.....	9	.....	

## POPE COUNTY.

E. M. WEBSTER, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 6; in Justice Courts, 2.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
<b>In District Court—</b>							
Manslaughter in first degree....	1	1	.....	.....	1	.....	State prison.
Assault in second degree.....	2	1	.....	1	.....	.....	County jail.
Grand larceny in second degree..	2	2	.....	.....	1	.....	State prison.
Carnal knowledge of female child .....	1	1	.....	.....	.....	.....	State prison.
Totals .....	6	5	.....	1	.....	2	
<b>In Justice Courts—</b>							
Petit larceny.....	1	1	.....	.....	.....	.....	County jail.
Violating game laws.....	1	1	.....	.....	.....	.....	County jail.
Totals .....	2	2	.....	.....	.....	.....	

## POLK COUNTY.

L. E. GOSSMAN, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 113; in Municipal and Justice Courts, 88.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
<b>In District Court—</b>							
Assault in first degree.....	1				1		
Assault in second degree.....	8				8		
Assault in third degree.....	1	1					County jail.
Arson in second degree.....	2				2		
Burglary in third degree.....	2	1			1		Reformatory.
Grand larceny in second degree..	34	5			29		State prison and 1 fined \$100.
Forgery in second degree.....	3	2			1		One reformatory, one state prison.
Indecent assault.....	1		1				
Bribery.....	2				2		
Seduction.....	2				2		
Keeping house of ill-fame.....	21	8			13		Fines \$1,600.
Violation of liquor laws.....	14	10			4		Fines \$250.
Keeping gambling house.....	21	10		1	10		Fines \$1,520.
Malicious mischief.....	1	1					
<b>Totals .....</b>	<b>113</b>	<b>38</b>	<b>1</b>	<b>1</b>	<b>73</b>		
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	23	19		4			Fines \$140.
Petit larceny.....	48	34		14			Fines \$235.
Violation of liquor laws.....	3	3					County jail.
Setting prairie fire.....	1	1					County jail.
Drunkenness.....	2	1	1				County jail.
Defrauding liverykeeper.....	1		1				
Keeping gambling device.....	8	5	3				County jail.
Indecent exposure.....	1		1				
Malicious mischief.....	1	1					Fined \$5.
<b>Totals .....</b>	<b>88</b>	<b>64</b>	<b>6</b>	<b>18</b>			

Costs taxed, \$3,174.41; fines assessed, \$3,850; total collected, \$3,435.00.

## PIPESTONE COUNTY.

C. W. GILMORE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4; in Municipal and Justice Courts, 13.

<b>In District Court—</b>						
Grand larceny in second degree..	2		1		1	
Violation of liquor laws.....	1		1			
Carnal knowledge of female child .....	1	1				State prison.
<b>Totals .....</b>	<b>4</b>	<b>1</b>	<b>2</b>		<b>1</b>	
<b>In Justice Courts—</b>						
Assault in third degree.....	7	4	1	2		Fines \$20.
Petit larceny.....	2	1	1			Fined \$10.
Malicious injury to property...	1		1			
Abusive language.....	1			1		
Cruelty to animals.....	1		1			
Trespass .....	1	1				Fined \$14.30.
<b>Totals .....</b>	<b>13</b>	<b>6</b>	<b>4</b>	<b>3</b>		



## ROSEAU COUNTY.

R. J. BELL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 1; in Municipal and Justice Courts, 11.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Murder in first degree.....	1	.....	.....	.....	1	.....	
In Justice Courts—							
Assault in third degree.....	3	2	1	.....	.....	2	Fines \$15.
Petit larceny.....	3	2	1	.....	.....	.....	Fines \$5.
Cutting timber on state lands...	2	.....	2	.....	.....	.....	County jail.
Gambling.....	1	1	.....	.....	.....	.....	Fines \$22.
Misdemeanors.....	2	2	.....	.....	.....	.....	
Totals.....	11	7	4	.....	.....	2	

Costs taxed, \$324.64; fines assessed, \$42; total collected; \$88.03.

## RICE COUNTY.

ROBERT MEE, COUNTY ATTORNEY

1895. Prosecutions in District Court, 16; in Municipal and Justice Courts, 126.

In District Court—							
Assault in first degree.....	2	1	1	.....	.....	2	State prison.
Assault in second degree.....	2	.....	.....	2	.....	.....	
Burglary in second degree.....	1	.....	.....	1	.....	.....	
Burglary in third degree.....	1	.....	.....	.....	.....	.....	
Grand larceny in first degree....	1	1	.....	.....	.....	.....	
Grand larceny in second degree..	8	3	2	2	1	.....	
Totals.....	16	5	3	6	2	2	
In Municipal and Justice Courts—							
Assault in third degree.....	34	20	6	8	.....	20	One county jail, 19 fines \$148.
Petit larceny.....	10	8	.....	2	.....	.....	Fines \$13.
Illegal voting.....	1	1	.....	.....	.....	.....	County jail.
Intoxication.....	62	59	1	2	.....	59	Fifty-seven county jail, 2 fines \$20.
Obstructing highway.....	1	1	.....	.....	.....	.....	Fined \$5.
Defrauding innkeeper.....	2	1	1	.....	.....	.....	Fined \$10.
Fast driving.....	1	.....	1	.....	.....	1	
Abusive language.....	11	10	.....	1	.....	.....	Three county jail, 7 fines \$14.
Malicious mischief.....	4	2	.....	2	.....	.....	County jail.
Totals.....	126	102	9	15	.....	80	

Costs taxed, \$1,704.40; fines assessed, \$240.00; total collected, \$490.09.

## ROCK COUNTY.

E. H. CANFIELD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 7; in Municipal and Justice Courts, 16.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Grand larceny in first degree....	1	1	.....	.....	.....	1	State prison.
Grand larceny in second degree..	4	1	.....	1	1	1	State prison.
Indecent assault.....	1	.....	.....	.....	1	.....	
Keeping house of ill-fame.....	1	.....	.....	1	.....	.....	
Totals .....	7	2	1	2	2	2	
In Justice Courts—							
Assault in third degree.....	9	4	5	.....	.....	3	Fines \$17.
Petit larceny.....	1	1	.....	.....	.....	.....	County jail.
Abusive language.....	2	2	.....	.....	.....	2	Fines \$4.
Disturbing meeting.....	4	4	.....	.....	.....	.....	Fines \$14.
Totals .....	16	11	5	.....	.....	5	

Costs taxed, \$186.74; fines assessed, \$35.00; total collected, \$65.37.

## REDWOOD COUNTY.

FRANK CLAGUE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 7; in Municipal and Justice Courts, 52.

In District Court—							
Indecent assault.....	2	.....	.....	.....	2	.....	
Violation of liquor laws.....	4	2	.....	2	.....	.....	One county jail, 1 fined \$100.
Carnal knowledge of female child .....	1	1	.....	.....	.....	.....	State prison.
Totals .....	7	3	.....	2	2	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	14	11	3	.....	.....	3	Fines \$41.
Petit larceny.....	17	14	1	2	.....	.....	Four county jail, 10 fines \$173.
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$25.
Abusive language.....	8	5	3	.....	.....	2	Fines \$17.
Drunkenness .....	11	11	.....	.....	.....	11	Fines \$102.
Indecent exposure.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	52	43	7	2	.....	17	

Costs taxed, \$567.43; fines assessed, \$463.00; total collected, \$653.70.

## BIENNIAL REPORT

## SHERBURNE COUNTY.

FRANK T. WHITE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 8; in Municipal and Justice Courts, 5.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1			1			State prison. State prison. Reform school.
Assault in third degree.....	1				1		
Arson in first degree.....	1				1		
Burglary in second degree.....	1	1					
Burglary in third degree.....	2	1		1			
Maintaining public nuisance....	1				1		Reform school.
Incorrigibility .....	1	1					
Totals .....	8	3		2	3		
In Justice Courts—							
Assault in third degree.....	1	1					Fined \$5.
Petit larceny.....	3	1	1	1			Fined \$15.
Carrying concealed weapons....	1	1					Fined \$5.
Totals .....	5	3	1	1			

## STEVENS COUNTY.

WM. C. BIDWELL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 2; in Municipal and Justice Courts, 7.

In District Court—							
Indecent assault.....	1		1				County jail.
Violation of liquor laws.....	1	1					
Totals .....	2	1	1				
In Justice Courts—							
Assault in third degree.....	1	1				1	Fined \$5.
Petit larceny.....	2	2				1	One Co. jail, 1 fined \$5.
Intoxication .....	4	4				4	Three county jail, 1 fined \$10.
Totals .....	7	7				6	

## SWIFT COUNTY.

C. B. M'CUNE, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4; in Justice Courts, 5.

In District Court—							
Assault in second degree.....	2	1			1		Reformatory.
Grand larceny in first degree....	1				1		
Forgery in second degree.....	1				1		
Totals .....	4	1			3		
In Justice Courts—							
Assault in third degree.....	2	1	1				Fined \$1.
Petit larceny.....	3	2	1				County jail.
Totals .....	5	3	2				

Costs taxed, \$90.21; fines assessed, \$1.00; total collected. \$57.90.

## SIBLEY COUNTY.

ED. H. HEUBNER, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11; in Justice Courts, 22.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Assault in second degree.....	1	1	1	1	1	1	Fines \$50.
Assault in third degree.....	2	2	1	1	1	1	State prison.
Burglary in first degree.....	2	1	1	1	1	1	County jail.
Grand larceny in second degree..	2	2	1	1	1	1	New trial granted.
Petit larceny.....	2	2	1	1	1	1	
Selling mortgaged property.....	1	1	1	1	1	1	
Malicious trespass.....	1	1	1	1	1	1	
<b>Totals .....</b>	<b>11</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	
<b>In Justice Courts—</b>							
Assault in third degree.....	9	9	1	1	1	1	Fines \$107.
Petit larceny.....	3	1	2	1	1	1	County jail.
Drunkenness .....	5	4	1	1	1	1	Fines \$32.
Cruelty to animals.....	1	1	1	1	1	1	Fined \$5.
Abusive language.....	4	4	1	1	1	1	Fines \$20.
<b>Totals .....</b>	<b>22</b>	<b>19</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>7</b>	

Costs taxed, \$144.65; fines assessed, \$214.00; total collected, \$330.00

## ST. LOUIS COUNTY.

GEO. E. ARBURY, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 62; in Municipal and Justice Courts, 35.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Manslaughter in second degree..	1	1	1	1	1	1	State prison.
Assault in first degree.....	1	1	1	1	1	1	Two state prison, 6
Assault in second degree.....	14	8	1	3	2	8	county jail.
Robbery in second degree.....	1	1	1	1	1	1	State prison.
Burglary in third degree.....	4	2	2	1	3	2	State prison.
Grand larceny in second degree..	22	13	5	1	3	6	Four state prison, 6
Forgery in second degree.....	7	5	1	1	1	2	Co. jail, 3 fines \$130.
Rape .....	1	1	1	1	1	1	State prison.
Indecent assault.....	1	1	1	1	1	1	
Perjury .....	1	1	1	1	1	1	
Violation of liquor laws.....	4	1	1	1	2	1	County jail.
Sodomy .....	1	1	1	1	1	1	
Violation of dairy and food laws.	1	1	1	1	1	1	
Cutting timber on lands of another	1	1	1	1	1	1	
Escape from officer.....	2	2	1	1	1	1	County jail.
<b>Totals .....</b>	<b>62</b>	<b>32</b>	<b>13</b>	<b>8</b>	<b>9</b>	<b>19</b>	
<b>In Municipal and Justice Courts—</b>							
Assault in third degree.....	21	17	4	1	1	10	Seven county jail, 10
Petit larceny.....	13	10	1	2	1	3	fines \$154.21.
Malicious destruction of property	1	1	1	1	1	1	County jail.
<b>Totals .....</b>	<b>35</b>	<b>28</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>14</b>	County jail.

Costs taxed, \$8,584.43; fines assessed, \$284.21; total collected, \$284.21.



## SCOTT COUNTY.

CHAS. G. HINDS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 11; in Municipal and Justice Courts, 37.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	1	1					Fined \$200.
Assault in third degree.....	2		1	1			State prison.
Grand larceny in second degree..	1	1					Reformatory.
Adultery .....	2	1			1		Fines \$160.
Violation of liquor laws.....	4	4					Fined \$200.
Bastardy .....	1	1					
Totals .....	11	8	1	1	1		
In Justice Courts—							
Assault in third degree.....	21	19	1	1		1	Three county jail, 10 fines \$145.
Petit larceny.....	2	1	1				County jail.
Abusive language.....	3	7	1				Fines \$27.
Incorrigibility .....	1	1					Reform school.
Drunkenness .....	2	2				2	County jail.
Injury to personal property.....	1	1					County jail.
Slander of female.....	1		1				
Carrying concealed weapons.....	1	1					County jail.
Totals .....	37	32	4	1		3	

Costs taxed, \$633.45; fines assessed, \$734.00; total collected, \$939.23.

## TRAVERSE COUNTY.

F. J. STEIDL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 15; in Municipal and Justice Courts, 18.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	5	2	1		2	2	One state prison, 1 fined \$100.
Maiming .....	1	1					Fined \$75.
Burglary in third degree.....	2	2				2	Reformatory.
Grand larceny in first degree..	2			2		2	
Grand larceny in second degree..	1			1			
Violation of liquor laws.....	3				3		
Selling mortgaged property.....	1			1			
Totals .....	15	5	1	4	5	6	
In Justice Courts—							
Assault in third degree.....	4	1	3				Fined \$2.
Petit larceny.....	1		1			1	Fines \$75.
Violation of game laws.....	6	3	2				Three county jail, 1
Miscellaneous .....	6	4	2		3		Fined \$11.
Cruelty to animals.....	1	1					Fined \$35.
Totals .....	18	9	9			4	

Costs taxed, \$826.26; fines assessed, \$298.00; total collected, 308.64.

## TODD COUNTY.

E. B. WOOD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 15; in Municipal and Justice Courts, 4.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in second degree.....	2	1	1	.....	.....	.....	Fined \$225.
Assault in third degree.....	5	1	1	.....	.....	.....	
Burglary in third degree.....	2	.....	.....	.....	.....	.....	Reformatory.
Grand larceny in second degree..	2	2	.....	.....	.....	.....	Reformatory.
Attempt to commit rape.....	1	1	.....	.....	.....	.....	
Trespass .....	1	.....	.....	.....	.....	.....	
Setting prairie fire.....	1	1	.....	.....	.....	.....	Fined \$20.
Selling liquor without license...	1	1	.....	.....	.....	.....	Fined \$50.
Totals .....	15	7	2	6	.....	.....	
In Justice Courts—							
Assault in third degree.....	4	4	.....	.....	.....	.....	Fines \$39.70.

## WILKIN COUNTY.

HENRY G. WYVELL, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 8; in Justice Courts, 12.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in third degree.....	3	1	.....	.....	2	3	State training school.
Grand larceny in third degree...	3	3	.....	.....	.....	.....	State prison.
Violation of liquor laws.....	2	.....	.....	.....	2	.....	
Totals .....	8	4	.....	.....	4	3	
In Justice Courts—							
Assault in third degree.....	6	5	.....	1	.....	6	Fines \$35.
Petit larceny.....	6	4	.....	2	.....	.....	Fines \$25.
Totals .....	12	9	.....	3	.....	6	

Costs taxed, \$111.10; fines assessed, \$60.00; total collected, \$45.00.

## BIENNIAL REPORT

## WASECA COUNTY.

L. D. ROGERS, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 10; in Municipal and Justice Courts, 45.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Assault in third degree.....	3	1	1	.....	1	.....	Fined \$25.
Burglary in third degree.....	3	1	1	.....	.....	.....	State prison.
Grand larceny in second degree..	3	2	.....	.....	.....	.....	One state prison, 1 reformatory.
Perjury .....	1	.....	.....	.....	1	.....	
Obstructing highway.....	1	.....	.....	.....	1	.....	
Auctioneer without license.....	1	1	.....	.....	.....	.....	Fined \$5.
Totals .....	10	5	2	.....	3	.....	
In Municipal and Justice Courts—							
Assault in third degree.....	17	16	1	.....	.....	8	Fines \$165.
Petit larceny.....	12	7	3	2	.....	4	State prison jail, 2
Keeping house of ill-fame.....	1	1	.....	.....	.....	.....	Fined \$5.
Abusive language.....	8	7	1	.....	.....	1	Fines \$35.
Malicious injury to property....	4	3	1	.....	.....	3	Fines \$28.
Resisting officer.....	2	2	.....	.....	.....	1	Fines \$20.
Defrauding innkeeper.....	1	.....	1	.....	.....	.....	
Totals .....	45	36	7	2	.....	17	

Costs taxed, \$1,123.48; fines assessed, \$338.00; total collected, \$478.40.

## WATONWAN COUNTY.

W. S. HAMMOND, COUNTY ATTORNEY.

1896. Prosecutions in District Court, 20; in Municipal and Justice Courts, 15.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor	PUNISHMENT.
In District Court—							
Riot .....	4	4	.....	.....	.....	.....	Motion for new trial pending.
Assault in first degree.....	1	.....	1	.....	.....	1	Fined \$25.
Assault in second degree.....	2	2	.....	.....	.....	.....	State prison.
Robbery in first degree.....	3	1	2	.....	.....	.....	State prison.
Grand larceny in second degree..	1	1	.....	.....	.....	1	State prison.
Forgery in second degree.....	8	6	.....	2	.....	.....	Fines \$150.
Violation of liquor laws.....	.....	.....	.....	.....	.....	.....	
Totals .....	20	15	3	2	.....	3	
In Justice Courts—							
Assault in third degree.....	10	9	.....	1	.....	1	One county jail, 8 fined \$70.
Drunkenness .....	2	2	.....	.....	.....	2	County jail.
Disorderly conduct.....	1	1	.....	.....	.....	1	Fined \$5.
Abusive language.....	2	2	.....	.....	.....	.....	Fines \$8.
Totals .....	15	14	.....	1	.....	4	

Costs taxed, \$745.66; fines assessed, \$268.00; total collected, \$363.85.

## WRIGHT COUNTY.

J. T. ALLEY, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 26; in Municipal and Justice Courts, 17.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of Intoxicating liquor	PUNISHMENT.
In District Court—							
Assault in second degree.....	4	1	2	1	...	...	Fined \$300.
Burglary in second degree.....	1	1	...	...	...	...	State prison.
Burglary in third degree.....	1	1	...	...	...	...	State prison.
Grand larceny in first degree....	3	1	1	1	...	...	State prison.
Petit larceny.....	3	2	...	...	...	...	County jail.
Forgery in second degree.....	1	...	1	...	...	...	
Indecent assault.....	1	...	1	...	...	...	
Seduction.....	1	...	...	...	1	...	
Violation of liquor laws.....	12	...	2	5	5	...	
Totals .....	26	6	7	7	6	...	
In Justice Courts—							
Assault in third degree.....	8	6	1	1	...	...	Fines \$108.55.
Petit larceny.....	7	5	2	...	...	2	One county jail, 4 fines \$32.90.
Violation of liquor laws.....	2	2	...	...	...	1	Fines \$50.
Totals .....	17	13	3	1	...	3	

Costs taxed, \$1,387.26; fines assessed, \$491.45; total collected, \$466.45.

## WASHINGTON COUNTY.

L. L. MANWARRING, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 21; in Municipal and Justice Courts, 39.

In District Court—							
Forgery in second degree.....	1	...	...	...	1	...	
Forgery in third degree.....	17	...	...	1	16	...	
Carnal knowledge of child.....	1	1	...	...	...	...	Reformatory.
Bastardy .....	2	1	...	1	...	...	
Totals .....	21	2	...	2	17	...	
In Municipal and Justice Courts—							
Assault in third degree.....	13	9	2	2	...	...	Fines \$80.
Petit larceny.....	9	5	1	3	...	...	County jail.
Violation of liquor laws.....	2	...	...	2	...	...	
Receiving stolen property.....	1	...	1	...	...	...	
Defrauding innkeeper.....	4	2	2	...	...	...	County jail.
Incorrigibility .....	2	2	...	...	...	...	Reform school.
Drunkenness .....	1	1	...	...	...	1	County jail.
Abusive language.....	2	...	2	...	...	...	
Cruelty to animals.....	3	2	1	...	...	...	County jail.
Unlawful entry of building.....	1	1	...	...	...	...	County jail.
Defrauding liverykeeper.....	1	...	1	...	...	...	
Totals .....	39	22	10	7	...	1	

Costs taxed, \$400.07; fines assessed, \$80.00; total collected, \$198.61.



## BIENNIAL REPORT

## WADENA COUNTY.

C. E. BULLARD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 4; in Municipal and Justice Courts, 14.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Arson in third degree.....	1	3	1				Fines, \$65.
Injury to real property.....	3						
Totals .....	4	3	1				
In Justice Courts—							
Assault in third degree.....	5	3	2				Fines \$47.39.
Violation of liquor laws.....	4	3	1				Fines \$63.60.
Injury to personal property.....	1	1					Fined \$27.60.
Voluntary intoxication.....	2	2				2	One county jail, 1 fined \$32.50.
Selling mortgaged property.....	1	1					Fined \$50.
Riot .....	1		1				
Totals .....	14	10	4			2	

Costs taxed, \$177.94; fines assessed, \$285.75; total collected, \$234.69.

## WINONA COUNTY.

W. B. ANDERSON, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 25; in Municipal and Justice Courts, 293.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
In District Court—							
Assault in first degree.....	1	2		1		2	Fines \$200.
Assault in second degree.....	2	3					Fines \$45.
Assault in third degree.....	3			1			
Robbery in first degree.....	1	1				4	State prison.
Burglary in third degree.....	5	1					State prison.
Grand larceny in first degree..	3	1	2			3	
Grand larceny in second degree..	1					1	Fines \$20.
Petit larceny.....	4	4					
Forgery in third degree.....	1		1				Fined \$100.
Violation of liquor laws.....	1	1					Fined \$50.
Fornication .....	1	1					
Bastardy .....	2	1	1				
Totals .....	25	14	4	2	5	5	
In Municipal and Justice Courts—							
Assault in third degree.....	66	60	4	2		16	Four county jail, 56 fines \$241.46.
Petit larceny.....	18	16	1	1		1	Thirteen county jail, 2 fined \$7.
Inmate house of ill-fame.....	20	20					Fines \$420.
Violation of liquor laws.....	2	2					Fines \$10.
Abusive language.....	7	6	1			1	One county jail, 5 fines \$23.
Resisting officer.....	3	3				3	Fines \$30.
Fast driving.....	8	8				3	Fines \$25.
Permitting fowls to run at large.	1	1					Fined \$3.
Intoxication .....	163	162	1			163	Fines \$556.45.
Peddling without license.....	4	3	1				Fines \$20.
Violation of game laws.....	1	1					Fined \$25.
Totals .....	293	282	8	3		170	

Costs taxed, \$912.80; fines assessed, \$1,925.91; total collected, \$2,121.40.

## YELLOW MEDICINE COUNTY.

A. J. VOLSTEAD, COUNTY ATTORNEY.

1895. Prosecutions in District Court, 8; in Municipal and Justice Courts, 7.

CHARGED WITH	Prosecutions.	Convictions.	Acquittals.	Nolle prosequi.	Pending.	Under influence of intoxicating liquor.	PUNISHMENT.
<b>In District Court—</b>							
Grand larceny in second degree..	3	3	.....	.....	.....	.....	One state prison, 1 county jail.
Keeping house of ill-fame.....	3	.....	.....	.....	3	.....	
Violation of liquor laws.....	1	1	.....	.....	.....	.....	Fined \$50.
Assault in second degree.....	2	.....	.....	.....	2	.....	
Totals .....	9	4	.....	.....	5	.....	
<b>In Justice Courts—</b>							
Assault in third degree.....	3	3	.....	.....	.....	2	Fines \$8.
Petit larceny.....	4	4	.....	.....	.....	.....	Fines \$28.
Totals .....	7	7	.....	.....	.....	2	

Costs taxed, \$203.99; fines assessed, \$36.00; total collected, \$96.81.

# OPINIONS OF THE ATTORNEY GENERAL.

## BUILDING AND LOAN ASSOCIATIONS.

1

**CERTIFICATES OF STOCK**—Certain form of certificate of stock of a building and loan association considered.

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: You call my attention to a form of certificate of stock which has been presented for your approval and which reads as follows:

"This certifies that....is the owner of....shares of the deposit stock of the Guaranty Savings and Loan Association of Minneapolis, Minn., upon which deposits may be made in periodical sums as provided in the by-laws of said association. The amount so deposited to bear interest at the rate of five per cent per annum, payable semi-annually on the first day of January and July each year, which said Guaranty Savings and Loan Association agrees to pay the holder hereof out of the net profits hereon until the same is canceled or withdrawn.

"The holder may withdraw all or any part of the amount so deposited at any time, but in case of such withdrawal no interest shall be paid on money left with the association less than three months, nor shall any interest be paid for a fractional part of a month.

"The board of directors reserve the right to demand a notice of sixty days for the withdrawal of this certificate, should the emergency require such notice.

"The holder hereof accepts and agrees to all the terms and conditions expressed in the by-laws of this association, and the state law under which it is incorporated.

"In witness whereof, the said Guaranty Savings and Loan Association has caused this certificate to be signed by its president and secretary and attested by its corporate seal at Minneapolis, Minn., this....day of...., A. D., 189..

"....."

"Secretary.

"....."

"President."

The form should not, in my judgment, be approved by you. It is apparent upon the face of it that whatever the motive which prompts the desire for its use, it opens a door through which a building association may easily pass from the legitimate purposes of its creation to an essentially banking business. Nothing short of express provisions of the statute should avail for such a purpose.

It provides that the holder of the certificate may make deposits in periodical sums; that the amounts so deposited may bear interest at the rate of five per cent per annum after three months; that the holder may withdraw "all or any part of the amount so deposited at any time." A by-law is relied on in support of the proposition, which contains the following proviso, and which is to be regarded as a part of the certificate: "The holder may at any time withdraw all or any portion of the amount paid or deposited thereon, but no interest will be paid on money left with the association less than three months."

It is therefore seen that one has only to take out a certificate for one or more shares and pay in his fee of one dollar per share, in order to enable him

to open a deposit account with the company and draw out his deposits at such time and in such amounts as shall suit his convenience, subject, of course, to the reserved right of the company to require a given notice. While the business may not be conducted strictly in conformity with the usages and practices of a bank, it is scarcely to be distinguished therefrom. Reputable companies may not be disposed to abuse such a right, if enjoyed, but the certificate, if permissible as to one company, may be adopted by all companies. Many of the restrictions placed about banking companies are wanting as to this class of companies.

But I am convinced that the by-law to which reference is above made violates the statute under which the company is organized and is to that extent invalid. Section 37 of said statutes provides for withdrawal only after the lapse of twenty-four months. This must be deemed a prohibition against withdrawal within that period.

You are therefore advised that the proposed form of certificate should not be approved.

H. W. CHILDS, Attorney General.

Dec. 14, 1895.

2

**ADMISSION FEE—A building and loan association is authorized to provide for the payment of an admission fee by a member at sometime subsequent to his admission to the company as a member thereof.**

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: I beg to acknowledge receipt of yours of the 9th inst., in which you call attention to a certificate presented for approval by the Interstate Savings and Loan Association of Minneapolis.

You request my views upon the question, in substance, as to whether or not a building and loan association is authorized to provide for the payment of an admission fee by a member at some time subsequent to his admission to the company as a member thereof.

It would seem that the above named association has provided in its contracts with members for the payment of such fee at the time of the withdrawal of the member.

While an admission fee is, in its nature, designed as a prerequisite to the admission of a person into membership, I perceive no reason why a company may not enter into a valid contract with a member to the effect that the same shall be paid in the manner as provided for by the contracts of the said company. The statute has made no express provision in reference to the subject, nor do I perceive how such a practice would be in violation of any of the implied terms of the statute. It certainly is in the interest of the member, as the admission fee is carried by the company for a greater or less period of time.

I am therefore of the opinion that the company is at liberty to make a contract of the above named character, and you are advised accordingly.

H. W. CHILDS, Attorney General.

July 24, 1895.

3

**EXCESS DIVIDEND—REMEDY—The statute makes no discrimination between the causes of the impairment of the stock of a building association, and such impairment may arise from excessive dividends.**

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: In your communication of the 2d inst. you state that a building association doing business under the provisions of General Laws 1891, chapter 131, has paid dividends in excess of net earnings, and inquire, in effect, whether such excess may be recovered under the impairment provision contained in section 27 of the said act.

The proviso, so far as material, is as follows:



"And provided further, that whenever the capital of an association has been impaired by losses in excess of its reserve fund and profits earned, it shall be the duty of the directors to suspend sale of all classes of stock until such losses have been adjusted and distributed pro rata as a charge upon the shares of stock in force."

The only theory on which the foregoing provision can be deemed applicable to the case presented is that the association, through mismanagement or otherwise, has lost the funds thus excessively paid out, and that thereby its capital has become impaired to that extent. It is evident that there has been a loss to the association from such causes, and it is, in my judgment, one which fairly falls within the purview of the statute. Thus regarding it, it necessarily follows that a suspension of the further issuance of stock is imperative until the loss has been properly adjusted. The statute provides that a loss resulting in an impairment of capital shall be adjusted and distributed pro rata as a charge upon the shares of stock in force. If I am correct in assuming that there has been a loss within the meaning of the statute, it must be adjusted as therein provided, pro rata upon the shares of stock in force. This does not imply an assessment of the stock according to the amount of excessive dividends paid thereon. The manner of adjustment is not dependent upon the character or the cause of the loss. It is enough to know, so far as adjustment under the statute is concerned, that the loss has arisen resulting in the impairment of the capital. The statute makes no discrimination between the causes of such an impairment.

As to what remedy, if any, should be pursued by the association in recovering its diverted funds, is a question which more properly belongs to the determination of the association itself, than to this office, and I therefore refrain from expressing any views thereon.

H. W. CHILDS, Attorney General.

May 4, 1895.

4

**CONTRACT—A certain form of contract considered and deemed in violation of law.**

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: I have considered the resolution submitted by Mr. Douglass, designed to authorize the Building and Loan Association of St. Paul to contract with borrowing members to the effect that when they shall have made 108 monthly payments, of interest, premium and stock dues, the company may, although the stock has not reached its maturity value, accept the same for cancellation, and mature the collected stock incurring the loan by crediting the said stock from the loan or contingent fund with an amount requisite to make its value equal to \$100 per share. I find no authority in section 26 of the law regulating the affairs of such associations for the adoption of such a policy. That section implies that installment stock matures only when the amounts paid thereon by the holder, together with dividends declared, shall equal the par value thereof. A borrowing member sustains a dual relationship to the company: that of a stockholder, and that of a mortgagee. As a stockholder, he is on equal footing with all other stockholders of the same class of stock; and it is foreign to the purpose of the statute to grant him any advantage not enjoyed by his associates. As a borrower, he is to be treated precisely as though he was not the holder of stock, and in strict accord with the terms of his contract.

These are plain business principles, and the more closely they are observed the fewer difficulties will arise.

H. W. CHILDS, Attorney General.

April 4, 1895.

## CARING FOR THE POOR.

**IMPORTING PAUPERS**—A person who knowingly brings a pauper into this country is guilty of a misdemeanor under the federal statutes.

ATTORNEY GENERAL'S OFFICE.

A. F. Nordin, Esq., County Attorney,

Dear Sir: By act of congress, 1885, approved February 26th, and amendments thereto (1887, February 23d, and 1891, March 3d), it is made a crime to import contract labor or "paupers or persons likely to become a public charge." By section 11 of the last named act such alien may within one year after the unlawful immigration be sent back to the country from which he came, at the expense of the person bringing him here. It appears from your letter that the pauper in question has resided in this country too long to be sent back under the federal statute and must now, in my judgment, be regarded legally settled in the county or township in which he has resided for the period of one year. If the person who brought him to this country knew of his condition at the time of so doing, he thereby offended against the federal statute and may be prosecuted therefor. The offense is declared a misdemeanor and punished by a fine of not more than \$1,000 or by imprisonment for a term not exceeding one year, or by both fine and imprisonment. If it is desired to prosecute him the case should be reported to the United States district attorney, Hon. E. C. Stringer of St. Paul.

While I have been unable to find any authorities upon the question of the liability of a person who brings a pauper into the country for the expense incurred by the county in caring for him, I incline to the view that where the importation was unlawful a civil liability exists.

H. W. CHILDS, Attorney General.

Feb. 20, 1895.

**RESIDENCE OF PAUPER**—A poor person gains residence in a county which has adopted the township system by a continuous residence therein for one year. A poor person who has gained a residence in a county is entitled to relief therein whether the county is under the "county system" or "township system."

ATTORNEY GENERAL'S OFFICE.

C. E. Chipperfield, Esq.,

Dear Sir: Where the township system has been adopted by the county, a poor person gains residence therein by a continuous residence for one year, although he may not have resided within any particular town, city or village therein continuously for that period. From your statement of facts, it is my opinion that the person in question acquired a residence in the county of Morrison.

Where residence has been acquired by a poor person in a county, it is a matter of no importance whether such county is under what is known as the county system or the township system, so far as his right to relief is concerned. This is the only view to be taken of General Statutes 1894, section 1977. It is therein expressly provided, that "if any poor person shall have resided within any county continuously for one year, but has not resided within any town, city or village therein continuously for one year, he shall be entitled to relief from that town or that incorporated city or village wherein he has resided for the longest period of the time within the year preceding his application for relief."

Mar. 26, 1896.

H. W. CHILDS, Attorney General.

## COUNTIES.

## MISCELLANEOUS.

**ALLOWANCE OF CLAIMS**—The statute contemplates no distinction between claims arising on contracts specifying a definite time of payment and those where such time is not specified, in providing that no order shall be issued in payment of such claim or any part thereof until the expiration of thirty days from the date of the decision.

## ATTORNEY GENERAL'S OFFICE.

James A. Peterson, Assistant County Attorney,

Dear Sir: You state that it has been the custom in your county for the board of county commissioners to pay claims against the county at once where they arise on contract and the contract specifies a certain time of payment, but that where the claim is not under a contract calling for payment at a certain time, then it has been customary for the claimant to have his bill paid within thirty days after its allowance; that this practice has been advised by your office during the incumbency of several of the predecessors of the present county attorney.

You inquire whether the practice thus pursued is in compliance with the law.

The question is disposed of by an opinion rendered by this office under date of Aug. 17, 1876 (Op. Attys. Gen. 345).

It was there said, among other things: "The statute further provides that 'when the claim of any person against a county is allowed in whole or in part by the board of county commissioners, no order shall be issued in payment of such claim or any part thereof until the expiration of thirty days from the date of the decision'—that is, the decision of the board allowing the claim. This statute is generally disregarded, but should be observed in order that an appeal from the decision of the board may be taken if desired. \* \* \* An appeal, if taken, is required to be taken within thirty days from the date of the decision of the board. In this case the allowance is made possibly months before any claim has arisen, and therefore if the resolution or action of the board can be sustained, the right of appeal is barred. To give force and effect to this statute the allowance must be made after the claim has matured against the county."

I indorse the above views as being a sound exposition of the law upon the subject. It is the custom usually, as I understand it, in respect to contracts for the erection of county buildings, to provide for one or more partial payments, with the residue of the contract price to await final completion and determination by the board of county commissioners. To what extent the statute has been disregarded I have no means of knowing, nor it is at all material. Strictly speaking, a board of county commissioners cannot evade the express terms of the statute by contract, resolution or otherwise. While it is manifest that a strict observance of the law will at times be attended with more or less embarrassment to interested parties, it presents no sufficient reason why public officers should vary from its manifest meaning.

H. W. CHILDS, Attorney General.

Feb. 8, 1896.

8

**ORGANIZATION**—Certain facts considered touching the legality of proceedings looking to the annexation of territory to Crow Wing county.

## ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: In your communication of the 12th inst. you state that: "On November 30th, a petition signed by sixty-seven actual residents and legal voters of a portion of Cass county was filed with Hon. Albert Berg, secretary of



state, praying that certain territory be detached from the unorganized country of Cass and attached to Crow Wing county, and it was alleged in said petition that the sixty-seven petitioners were fifty-five per cent of the actual residents and legal voters of the territory proposed to be attached to Crow Wing county. On December 7th, the day on which the hearing on said petition was held, a remonstrance, purporting to be signed by actual residents and voters of the territory to be affected, was presented to the governor and secretary of state, and said remonstrance contained eighteen or twenty names of those who had signed the original petition in favor of annexation to Crow Wing county."

You inquire, in effect, whether the board is to take cognizance of the said remonstrance, and particularly of the eighteen or twenty names attached to both the petition and the remonstrance. In other words, must such names be stricken from the petition. You further inquire whether the words "legal voters," as used in paragraph 2 of section 2, chapter 298, Session Laws of 1895, refer to registered voters or to the number of votes actually cast at the election, and in this connection you call attention to the fact that there were 909 names of male voters on the registers of the election, while the total number of ballots cast by male voters was 483.

In order to authorize the annexation of territory of an unorganized county to an organized county, two petitions must be presented to and filed in the office of the secretary of state; one containing not less than fifty-five per cent of the actual residents and legal voters of the territory sought to be thus annexed, and the other containing the same proportionate number of the actual residents and legal voters of the county to which it is sought to annex such territory. In both cases the compliance with the statute as to the requisite number of signatures must be determined by reference to the returns of the last preceding general election. The statute nowhere provides for the filing of a remonstrance. Undoubtedly a petitioner may at any time before final action withdraw his name from the petition on which it appears, and this, too, notwithstanding the omission of the statute upon the subject of remonstrance. (*Slingerland vs. Norton*, 61 N. W. Rep. 322.)

A simple remonstrance in which there is no request to have the name of the remonstrants stricken from the petition is ineffective for any purpose, and it is extremely doubtful, at best, whether a remonstrance containing such request would be entitled to the consideration of your board. This, I may say, is contrary to the doctrine once obtaining in the office of the attorney general of this state, and is based upon what is said by the supreme court in the case of *Currie vs. Paulson*, 43 Minn. 411. There the court, speaking of the statute regulating the removal of county seats, used the following language:

"The only thing on that question was the so-called remonstrance itself; and while the act refers to remonstrances and assumes to impose certain restrictions upon their presentation, yet we fail to discover that they amount to anything or have any office to perform. They are not made evidence of anything; and as the county board has no discretion in the matter of the removal of the county seat, it is difficult to see what effect a remonstrance can have one way or the other."

With equal, if not greater, force may it be said of the remonstrance in question, that it is made evidence of nothing and has no office to perform. Had the remonstrants either appeared personally before you or empowered one or more persons to appear therefor in their stead, and directed the erasure of their respective names from the petition, I am clearly of the opinion that it would have been the duty of your board to have complied with such request. This was the course pursued by the remonstrants in the case of *Slingerland vs. Norton*, above cited.

Your remaining inquiry calls for a construction of the word "return" as used in the statute. This question is also answered by the case just cited. The county seat law requires that the petition for removal shall be signed by not less than sixty per cent of the voters of the county "as shown by the returns of the general election preceding the presentation of the petition." In construing the word "returns" as thus used, the court held that the poll lists, rather than the official count, must be consulted. Although the statute in that case required sixty per cent of the whole number *voting* as shown by the returns, while the law of 1895 requires fifty per cent of the actual *voters* as



shown by the returns, no distinction can be drawn between the two statutes upon that ground. The fact that the poll lists contain a much greater number of names than the number of persons who actually voted, is of no importance in determining the question presented. It must be presumed, especially in the absence of any showing to the contrary, that the names came properly upon the lists.

It is therefore apparent that the petitions in question must contain fifty-five per cent of the resident voters as shown by the poll lists.

H. W. CHILDS, Attorney General.

Dec. 16, 1895.

9

**CHANGE OF BOUNDARY LINES**—The legislature was not authorized to change the boundary lines of Sibley county without the submission of the question to the electors of that county.

ATTORNEY GENERAL'S OFFICE.

Ed. H. Huebner, Esq., County Attorney,

Dear Sir: I have examined the question submitted in yours of the 1st inst., and reach the view that the legislature had no authority in 1866 to change the boundary line of Sibley county, without a submission of the question to the electors of that county.

As to the effect of long acquiescence in whatever change may have been thus attempted, it is impossible to state what may be the ultimate decision of the courts. It is not at all improbable that the court will be largely governed, in view of the long lapse of time, by considerations of public policy. Other instances than the county of Sibley might be mentioned, in which legislation affecting the boundaries of counties has been characterized by little regard to constitutional requirements.

H. W. CHILDS, Attorney General.

Aug. 5, 1895.

10

**KEEPING PRISONERS**—When a prisoner is received into the jail of one county from another county, the county receiving him is required to provide for him both as to bed and clothing.

ATTORNEY GENERAL'S OFFICE.

H. C. Grass, Esq., County Attorney,

Dear Sir: When a prisoner is received into the jail of one county from another county, as provided by law, the county receiving him is required to provide for him both as to bed and clothing. Clothing belongs to the "furnishings" of the jail. This naturally follows from the fact that the clothing of prisoners is to be of uniform character and to be retained in the jail to be worn by successive prisoners. Had any other rule been intended by the legislature it would have been evidenced by appropriate language. The receiving county is authorized to collect from the other the sums only which are expressly stated. In this respect, no distinction can be drawn between clothing and towels and soap. The jail in Nobles county not having been designated as provided in General Laws 1893, chapter 157, section 29, that county will be entitled only to fifty-seven cents per day for each prisoner kept for Murray county. A discrimination is made in favor of the county having a designated jail, due, no doubt, in great measure to the superior features of its institution—a sort of reward of merit, as it were, to the county which has provided itself with a well constructed and furnished jail. Any other liability than that above expressed is unauthorized.

H. W. CHILDS, Attorney General.

July 13, 1895.

**COUNTY SEAT REMOVAL**—A petition for the removal of a county seat may be circulated within the prohibited period of five years; but is not entitled to recognition by the county auditor or board of county commissioners until after the expiration of that period. A petitioner has a right to withdraw his signature, either by himself or a duly appointed agent. When two petitions are contemporaneously presented to the county auditor he should act upon the one which first comes to hand.

ATTORNEY GENERAL'S OFFICE.

Ed. H. Huebner, Esq., County Attorney,

Dear Sir: In view of the terms of the statute, I am of the opinion that a petition for the removal of a county seat may be circulated within the prohibited period of five years. It will not, however, be entitled to recognition, either by the county auditor or the board of county commissioners, until after the expiration of that period.

The right of a petitioner to withdraw his signature, either by himself or a duly appointed agent, is established by the Dodge county case.

When two petitioners are contemporaneously presented to the county auditor, the proper procedure is not expressly prescribed by the statute, and the subject is at best attended with difficulties. It would seem to be foreign to the contemplation of the statute that more than one petition shall be acted upon. The principle must be the same whether two petitions are contemporaneously presented with several days or weeks intervening between them. Certainly but one election can take place within a period of five years. It is possible, but not in my judgment probable, that the court will hold that an election may be called for the same date and have both questions determined as a single one. This would tend to great confusion and should not be adopted until after a judicial decision authorizing it.

All in all, the appropriate course will be for the auditor to act upon the petition which first comes to his hand. In this respect he should exercise great precaution and avoid any semblance of favoritism. It may be assumed now that there will be a lively competition between rival petitioners to be first in presenting the respective petitions. If this course is pursued, it cannot be prejudicial to either party, as the courts will be open for the redress of any suffered grievance.

H. W. CHILDS, Attorney General.

Sept. 13, 1895.

**LEGAL NOTICES**—The law does not contemplate publication either of the delinquent list or the annual statement in more than one paper. Having selected one for such purpose, it is improper to contract with others for publication of the same matters at any rate.

ATTORNEY GENERAL'S OFFICE.

L. G. Davis, County Attorney,

Dear Sir: You state that the board of county commissioners of your county received "four straight bids of publishers to do all the county printing for five per cent of legal rates, and that one publisher bid to do the same work for twenty-three per cent of such rates, the latter newspaper being one of very limited circulation." It appears that the board rejected all bids, and that an arrangement was entered into whereby publication of legal matters is to be made in all of the five papers bidding "at one legal rate." One paper was designated the "official paper," and required to give a bond that the publication shall be made in all the English papers in the county.

You ask, in effect, whether the action of the board was authorized, and whether the publication will be a sufficient compliance with the statute.

A board of county commissioners is authorized to contract with the publishers of newspapers for the publication of delinquent tax lists, the annual

statement, and legal notices required in special cases. The county auditor and treasurer are also authorized to select papers in which to publish the financial statement. The law does not recognize *eo nomine*, with reference to county printing, such a paper as an "official paper." A paper which has been selected for the publication of any of the matters above named is commonly regarded, especially among county officials, as the official paper of the county. That title rests, however, in common parlance, rather than upon any statutory provision.

In selecting a paper for either of the purposes contemplated by sections 680, 1581, or 1628, the designation must be specifically made therefor. I do not mean by this that it would be improper to contract at the same time specifically for all such purposes, but a designation for the publication of the delinquent tax list must be a publisher whose paper is eligible to receive such publication, and whose bid therefor is the lowest. If, however, it should happen that two or more publishers bid the same sum, which is lower than that of any other publisher, it would be proper to select any one of such lowest and equal bidders. (*Godfrey vs. Valentine*, 45 Minn. 592.)

No doubt a board of county commissioners may receive bids for printing the annual statement and contract for compensation at a less rate than that which is allowed by section 1581. In the absence of an express agreement otherwise, the statutory compensation could be recovered by the publisher.

I do not clearly comprehend your language when you say that the printing is to be let to all of the papers bidding "at one legal rate." I understand you to mean that the board has thus contracted to pay twelve cents per folio for the delinquent list, and the rate named in section 5581 for the rest. If this is true, it is difficult to reconcile the action of the board with what was their manifest duty, having regard for economy, in view of the facts as above recited. In the first place, the law does not contemplate publication either of the delinquent list or the annual statement in more than one paper, but your board has made a contract for the publication in at least five papers, and I understand you, they agreed to pay twenty times the amount for which four papers offered to do it. Be this as it may, I am of the opinion that if the resolution adopted by the contract was proper in form, the designation of the one paper with which the contract was apparently made will be sustained, if ever questioned in any collateral proceeding. I infer that one paper was designated as the paper in which the delinquent list and other matters should be published.

H. W. CHILDS, Attorney General.

May 7, 1896.

13

## II.—COUNTY ATTORNEY.

**VACANCY—The question of vacancy in the office of county attorney considered.**

### ATTORNEY GENERAL'S OFFICE.

William C. Brown, Esq., County Attorney.

Dear Sir: You state that you were elected county attorney of Marshall county and are now holding the office under such election. At the last general election one H. W. Brown was elected as your successor in said office, but who died a few days after his election, and I assume before qualifying for the said office. In view of the facts above recited, you ask the following questions:

1. Is there a vacancy in the office of county attorney?
2. If so, how is it to be filled?

Unquestionably, a vacancy will occur in the said office at the expiration of your present term within the contemplation of General Statutes 1878, chapter 9, section 2, subdivision 8. That statute was evidently framed to meet the defect pointed out in *State vs. Benedict*, 15 Minn. 153. (See *County of Scott vs. Ring*, 29 Minn. 398.) This is the view long since adopted by this office. (*Op. Atty. Gen.* 313.)



The vacancy thus arising will be filled by the board of county commissioners at the first session after the beginning of the new official year, pursuant to section 218, chapter 8, General Statutes 1878.

Section 10, chapter 4, General Laws 1893 has no application to the case, as provision is elsewhere made, as above indicated, for filling the vacancy.

H. W. CHILDS, Attorney General.

Jan. 4, 1895.

14

**EXPENSES**—Expenses incurred by the county attorney for transcript of record in certain cases is a proper charge against the county. Strictly speaking, bill for clerical services is not a county charge.

ATTORNEY GENERAL'S OFFICE.

George E. Arbury, Esq., County Attorney,

Dear Sir: You state that you incurred as county attorney certain bills in matters of importance to the county, two being for the services of stenographer and typewriter and one for a disbursement in securing a certified copy of a record necessary to be used in actions instituted by you on behalf of the county. The board of county commissioners are in doubt as to whether or not the said bills are proper charges against it, and for that reason have deferred action upon them until a future meeting.

The bill for the transcript of the record is clearly a proper charge against the county.

Strictly speaking, the other items are not county charges. As I understand your statement, they were incurred for merely clerical services which could have been performed by yourself. Ordinarily expenses for such services should be borne by the county attorney. While this is so, a case may arise when the time of that officer is so much occupied with official duties as to afford him no reasonable opportunity in which to perform the service himself. He is not required to employ such services. When, however, they are necessary to a proper dispatch of the business of the county, as would seem to be the case as to the services in question, the board of county commissioners might properly allow compensation therefor. To say that such bills are always lawful, would be to approve the employment at the county's expense of a stenographer and typewriter in copying every indictment or pleading or other paper prepared by the county attorney in the interest of the county. I assume that you do not contend for this, but ask assistance only in exceptional cases, like those above instanced.

H. W. CHILDS, Attorney General.

Jan. 27, 1896.

15

### III.—COUNTY COMMISSIONERS.

**AUTHORITY TO COMPROMISE A JUDGMENT**—A board of county commissioners may, in its discretion, authorize a compromise of a judgment in the matter of the collection of a personal tax.

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Dear Sir: You submit, in brief, the naked question, whether a board of county commissioners is authorized to compromise a judgment rendered against a solvent corporation in the matter of the collection of a personal tax.

The statute provides that the said board "have final power to examine and settle all accounts of the receipts and expenditures of the county, and shall have the care of the county property and the management of the county funds and business, except in cases otherwise provided for; but shall exercise no other powers than such as are given by law." (G. S. 1894, sec. 681.)

Having the general management of the business of the county, the board constitutes, for the purpose of transacting the public business, the quasi cor-



position itself which it represents. It is the authorized body of the county. (Cushman vs. Carver County, 19 Minn. 256.)

Such boards have power to do whatever the county might do, if capable of rational action; they are the guardians of the county, having the management and control of its financial interests. (4th Am. & Eng. Enc. of Law, 379.)

As a general proposition, municipal corporations have the same power to liquidate claims and indebtedness that a natural person has, and from that source proceeds power to adjust all disputed claims, and when the amount is ascertained, to pay the same as other indebtedness. (1st Dillon, 478.)

The case of Collins vs. Welch, 58 Iowa, 72, is, in my judgment, decisive of the question presented. A statute of Iowa provided that county supervisors are "to represent their respective counties and to have the care and management of the property and business of the county in all cases where no other provision shall be made." It is thus seen that the Iowa statute is not essentially different from our own. Indeed, it is evident that one suggested the other, or that the two had a common origin. It appeared in that case that the claim was for taxes which had ripened into judgment, and that the defendant was a solvent debtor. It is difficult to perceive a case more clearly in point. The doctrine was there announced that a board, if acting in good faith, has authority to compromise a judgment in favor of the county. (See, also, Board of Supervisors vs. Bowen, 4 Lans. 27.)

It is suggested that while authority resides in the board to compromise a money judgment in favor of the county, it does not reach a judgment based upon a personal tax. In support of this contention I am cited Gundyson vs. Polk County, 57 Minn. 212.

I cannot subscribe to such a view. All that case decides upon the subject of authority is that it cannot cancel personal taxes, save in compliance with the express terms of the statute. The court there say: "It is clear enough the legislature did not intend to vest in the board the somewhat dangerous power to cancel a personal tax until a bona fide effort to collect it in the usual way has proved ineffectual."

To cancel a personal tax is to excuse the taxpayer from paying any part thereof. Power to compromise a judgment implies authority to subvert the best interests of the county in a given case, nor is the question affected by the fact that the judgment is based upon a claim for taxes. As was said by the court in the Iowa case, it "stands upon the footing of any other judgment."

It may seem a dangerous power to lodge in the hands of a board of county commissioners. I do not so regard it. Such discretion should be lodged somewhere. It may be abused, to be sure; but without such authority, the county may on occasions severely suffer.

H. W. CHILDS, Attorney General.

May 19, 1896.

16

**AUTHORITY—HIGHWAYS—**The authority of a board of county commissioners to expend a greater sum of money for highway purposes than that which is expressed in the itemized list, considered.

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Dear Sir: In your communication of the 26th inst. you state, in brief, that your board of county commissioners have allowed claims for highway work to a considerable amount in excess of the fund created therefor by tax levy, and that orders have been drawn by the county auditor and countersigned by the chairman of the board of county commissioners for such excess. Both the county auditor and county treasurer now seek instruction as to their respective duties with reference to the excessive claims.

The statute provides, that county taxes shall be based upon an itemized statement of the county expenses for the ensuing year, which statement shall be included in the published proceedings of the county board, and no greater levy of county taxes shall be made upon the taxable property of any county than will be equal to the amount of such expenses with an excess of five per

cent of the same. It is to be assumed that your board complied with the law in providing for its tax levy, and that among the items named in the list prepared pursuant to the statute, was an amount deemed requisite for highway purposes.

The question presented involves the authority of the board of county commissioners to expend a greater sum of money for highway purposes than that which is expressed in the itemized list. The language used by our supreme court in the case of Commissioners of St. Louis County vs. Nettleton, 22 Minn. 359, implies that such authority has been conferred upon them.

The court there say: "The authority of the county commissioners to provide in the tax levy for such sums as during the year they are authorized and may find it necessary to appropriate from the county treasury for opening, vacating, resurveying or otherwise improving county roads, cannot be doubted. Their authority to appropriate in advance, and at the time of making the estimate for the levy, any sum to such exclusive use,—that is, to provide for such purpose a distinct and separate fund that cannot be used for any other purpose,—is quite another thing. It is doubtful, although the language of section 79 of the act of 1874 may perhaps suggest that it may be done, whether they have any such authority."

In this connection it should also be noted that the board of county commissioners may appropriate, within a fixed limitation, moneys from the county treasury for highway purposes. The amount which may be thus appropriated is left wholly to the discretion of the board, subject to the limitation above referred to.

All in all, it is doubtless the correct view to regard the statute requiring the itemized list as affording a basis merely for the levy, without imposing restrictions as to the amounts which shall be devoted to specific purposes. It certainly could not have been intended that the hands of the board are to be so tied that it could not appropriate moneys from the treasury to meet emergencies which might, from time to time, arise.

Of course, I assume that the board has made an appropriation for the work from the treasury. I do not wish to be understood as holding that orders may be drawn and paid for highway work, in the absence of an appropriation from the county treasury of a definite amount for such purpose.

Dec. 29, 1894.

H. W. CHILDS, Attorney General.

17

**REMOVAL OF COUNTY SEAT**—Board of county commissioners cannot entertain second petition for removal of county seat until first petition has been disposed of.

E. H. Huebner, Esq., County Attorney,

ATTORNEY GENERAL'S OFFICE.

Dear Sir: You state that a petition for the removal of the county seat from Henderson to Arlington was considered by the board of county commissioners; that after they had completed their investigation, it was found that there were not a sufficient number of names left upon the petition to authorize the county auditor to call an election; that thereupon a mandamus proceeding was then brought against the board to compel them to reconsider their action on retractions of withdrawal, which the board refused to recognize. The district court thereupon ordered the issuance of a preëemptory writ, from which order the board of county commissioners has taken an appeal to the supreme court, which appeal is now pending therein and will be disposed of before the fall term of that court.

Subsequent to the filing of the said petition a second one has been filed in the office of the county auditor for the removal of the county seat from Henderson to Gaylord.

You now inquire whether, in my opinion, the board of county commissioners can properly entertain the second petition pending the litigation in which the first named petition is involved.

I am clearly of the opinion that you have taken the proper view of the law, and that the second petition should not receive any official consideration

by the board until an election has been had upon the first named petition, or it has been adjudged insufficient as a petition to be entitled to such an election. The law contemplates that petitions shall be acted upon in the order in which they are presented to the board of county commissioners. If for any reason a final determination of the official action of the board upon a given petition is arrested by judicial proceedings, it cannot operate to the disadvantage of the petitioners. If their petition is in fact sufficient in form and entitles them to an election, it is their right, under the statute, to have an election thereon prior to the consideration of a subsequent petition.

H. W. CHILDS, Attorney General.

April 30, 1896.

18

**CONTRACT FOR SUPPLIES**—County commissioners have no authority to make a contract for furnishing supplies to the county with a member of their body or with a firm with which he is connected.

ATTORNEY GENERAL'S OFFICE.

Mr. C. Roderig, County Commissioner,

Dear Sir: Yours of the 15th inst., in which you refer to the subject-matter expressed in one of earlier date, is received.

Save in the respect in which the statute provides that a county treasurer shall be allowed for certain expenditures in purchasing stationery, material of whatever nature, stationery or otherwise, requisite to county business, is procured by contract. It matters not in what form a contract is made or what the subject-matter thereof, the law is prohibitive against a member of the board being interested, directly or indirectly, therein.

It is the duty of the county to provide certain officers with necessary stationery. (Gen. Stat. 1894, sec. 677.) This clearly implies a contract by the county with the person furnishing the same. Strictly speaking, all contracts, whether formal or informal, made on behalf of the county fall within the prohibition. When an officer presents his bill for an allowance on account of expenditure made for stationery, the board of county commissioners must pass upon the reasonableness of the price paid, and must by their action ratify or repudiate the contract. This is so, too, when a bill is presented by one who has supplied a county officer with supplies of any nature. There is only one safe rule to observe in such matters, and that is that boards of county commissioners should refuse to make a contract either with a member of their body or with a firm with which he is connected. The language of the statute is that the commissioners shall not be *directly or indirectly* interested in the contract. While occasions may arise when a board of county commissioners may deem it expedient to depart from the strict letter of the law, I do not feel warranted in placing any other construction upon the statute than that above given.

H. W. CHILDS, Attorney General.

Feb. 19, 1896.

19

**UNORGANIZED COUNTIES—POWERS OF COUNTY COMMISSIONERS**—The powers and authority of a board of county commissioners in an unorganized county are defined by General Laws 1887, chapter 189, as amended by General Laws 1895, chapter 125.

ATTORNEY GENERAL'S OFFICE.

C. M. Johnston, Esq., County Attorney,

Dear Sir: Save as otherwise expressed in unrepealed special acts of the legislature, the powers and authority of a board of county commissioners in an unorganized county are defined by General Laws 1887, chapter 189, as amended by General Laws 1895, No. 105. (Pop. Ed., or H. F. 255.) An unorganized county is in an inchoate condition, and presumably requiring but limited official supervision. As a rule, the express statute should be looked



to in matters pertaining to such a county, whether as to the board of county commissioners therein, or of the board of county commissioners to which it is attached. I do not see how I can add anything of value to the above.

Aug. 17, 1895.

H. W. CHILDS, Attorney General.

## 20

**ABSTRACTS**—The board of county commissioners have authority to make provision for a set of abstract books for the use of the county, either by the purchase of an existing set or having a set made.

Robert Mee, Esq.,

ATTORNEY GENERAL'S OFFICE.

Dear Sir: You ask in brief whether your board of county commissioners has authority to cause a set of abstracts made for the use of the county. You state that you have advised the said board that it may purchase a set already made, but that it has no right to provide for having one made.

The statute is so framed, it must be admitted, as to somewhat invest the question with doubt. As it was enacted in 1871 (chapter 93), the board was authorized to have tract index books made at a cost not to exceed two cents per entry. In 1873, the law was so amended (chapter 42) as to authorize the board to purchase either tract index books or abstracts of title. But I deem it, however, a too narrow view of the amendatory act to hold that it restricts the board to the acquisition of a set of abstract books only by the purchase of an already existing set. It was clearly intended to enable a county to provide itself with such books, and, in my judgment, it may do so either by the purchase of an existing set or otherwise. The amendatory act, it should be noted, is in form a proviso so far modifying the terms of the pre-existing law as to authorize the purchase of a set of books of either class prepared to hand. It implies an existing authority to procure the books in a certain way, but affords additional authority.

I am therefore of the opinion that your board may make provision for a set of abstract books, so-called, either by the purchase of an existing set or by having a set made, as it may elect.

May 2, 1895.

H. W. CHILDS, Attorney General.

## 21

**COMPENSATION**—County commissioners are not entitled to mileage in visiting paupers.

C. N. Johnston, Esq., County Attorney,

ATTORNEY GENERAL'S OFFICE.

Dear Sir. You have, I think, placed the proper construction upon General Laws 1893, chapter 178. General Laws 1885, chapter 263, became *eo instanti* when enacted part and parcel of General Statutes 1878, chapter 15, section 12. Section 12 now exists only in the form in which it is found in section 3 of the law of 1893.

It therefore follows that the commissioner is not entitled to mileage in visiting paupers.

Feb. 6, 1896.

H. W. CHILDS, Attorney General.

## 22

**COMPENSATION**—The effect of the proviso contained in General Laws 1891, chapter 125, section 1, is to relieve the board of county commissioners of Carver county from the restriction provided in the body of the section as to length of sessions.

ATTORNEY GENERAL'S OFFICE.

P. W. Morrison, Esq., County Attorney,

Dear Sir: The effect of the proviso contained in General Laws 1891, chapter 125, section 1, is to relieve the board of county commissioners of



Carver county from the restriction provided in the body of the section as to length of sessions, regular and extra. It does not, however, follow that the members of the board are entitled to compensation for every day the board may be in session. The statute above cited must be read in connection with General Statutes 1878, chapter 8, section 100. They are subject to the limitations therein prescribed, notwithstanding the said proviso. The express reservations in section 100 includes all others, in accord with a well recognized rule of construction.

The work of transcribing the records of the books of the county auditor pursuant to the resolution of the board of county commissioners does not fall within the purview of the official duties of that officer, and he may, therefore, be allowed reasonable compensation for the service.

H. W. CHILDS, Attorney General.

Aug. 5, 1895.

23

**COMPENSATION OF COMMISSIONERS IN BLUE EARTH COUNTY—Special Laws 1878, chapter 148, and Special Laws 1879, chapter 69, construed as affected by General Laws 1893, chapter 154, touching the compensation of the county commissioners of Blue Earth county.**

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: Calling attention to Special Laws 1878, chapter 148, Special Laws 1879, chapter 64, and General Laws 1893, chapter 154, you state that the county commissioners of Blue Earth county assert that the last named statute operates to extend the time during which they are entitled to draw compensation for their official services. My construction of the above several acts is requested.

The act of 1878 has reference only to the commissioners of Blue Earth county, and the legislature thereby fixed the amount of their compensation. That compensation was established with reference to the general law as it then existed, and expressly provided that those officers should be entitled to a per diem of three dollars for each day necessarily employed, "not to exceed ten days in any one year in addition to all other compensation *now* allowed by law."

The correct view of such provision is that, by reason of the special law, the provisions of the pre-existing law, so far as applicable, were admitted as a part thereof.

When a subject is selected from its class and specially legislated upon, the terms of the special law are exclusive, unless a contrary intention is manifest.

A further increase to the period for which compensation may be allowed to such officers is provided by the law of 1879. By the two last named statutes the commissioners are allowed to draw in the aggregate, and in excess of what is allowed by the law as it stood in 1878, compensation for twenty days' services. The general law of 1893 has no application whatever to Blue Earth county, save that it excepts it by necessary implication from the purview of its terms. This is the only just construction to be given to the third proviso contained in section 2 thereof.

You inquire whether they are entitled to compensation as provided in General Statutes 1878, chapter 15, as amended by General Laws 1885, chapter 263. The effect of the amendment was to afford compensation at the rate of three dollars per day for each day necessarily employed, and ten cents per mile for every mile necessarily traveled in the performance of duty, as in caring for the poor. A limitation was imposed upon the amount of per diem and mileage which might be lawfully received. The question now is whether the amendatory law of 1885 survives the amendment of General Laws 1893, chapter 178. The proviso added perforce of the law of 1885 became as effectively part and parcel of the law amended as though it had been incorporated therein at the date of its passage. The general law of 1893 amends section 12 by use of the words "so as to read as follows." The weight of authority is

to the effect that such an amendment is tantamount to a repeal of all the provisions of the pre-existing law which do not reappear in the law as amended. You are therefore advised that the proviso of 1885 is no longer in force or effect.

General Laws 1891, chapter 62, if valid for any purpose, was designed to except the county of Wright from the provisions of the general law. The limitation contained in the last proviso clearly has reference to the county commissioners of that county. The juxtaposition of words and the natural force of language afford no escape from such construction. Moreover, the title of the act contemplates no other subject than Wright county, as it is therein expressly recited that the purpose is to add the provision to the general law relating to such county.

A public officer must always rely upon the express terms of a statute as the measure of his compensation and mileage. The statute having limited the sessions to those for which mileage may be paid to a county commissioner, it must be deemed a limitation upon the commissioners of Blue Earth county, as I find no exception expressed in the special legislation affecting that county, or elsewhere.

General Laws 1891, chapter 19, must be construed to mean that where a sum not exceeding in the aggregate \$300 is appropriated for the construction or repair of one or more roads, or bridges, in a township, such moneys are to be expended under the supervision of the supervisors of such township. The jurisdiction of the supervisors is always dependent upon the amount appropriated at any one time. If at any one session, an appropriation of \$250 is made for such purpose, the jurisdiction of the township officers attaches and they will supervise the expenditure. On the other hand, when at any such session an appropriation of \$500 for such purpose, to be expended at different times, or as the board shall determine, whether on one or more roads, is made, the expenditure will be under the supervision of the commissioners rather than the supervisors. (See the opinion of this office under date of July 25, 1893, Report 1894, No. 41.)

The law contemplates that moneys appropriated by the commissioners which are to be expended under the direction of the township officers shall be paid to the township treasurer and by him paid out upon proper orders. This is manifest from the terms of General Laws 1893, chapter 19, section 3, wherein, among other things, it is provided, that "before any town treasurer shall be entitled to receive from the county treasurer any moneys so provided to be paid by section 2 of this act, he shall exact" a bond, etc. If the expenditure was intended to be governed by General Statutes 1894, section 644, it would be wholly unnecessary to disburse them through the office of the town treasurer.

Nov. 26, 1896

H. W. CHILDS, Attorney General.

24

#### IV.—CLERK OF COURT.

**CLERK HIRE**—A clerk of court is authorized to hire a deputy and pay him the amount named in the law without authorization by the board of county commissioners. When it is made to appear to the board of county commissioners that the clerk has expended the amount allowed by law, they may allow him a further sum.

ATTORNEY GENERAL'S OFFICE.

L. E. Gossman, Esq., County Attorney,

Dear Sir: In yours of the 5th inst. you call attention to the provisions of chapter 424, Special Laws 1891, providing for clerk hire for the clerk of the district court, and inquire, in substance, whether the clerk of court has a right to hire a deputy and pay him the amount named in the law, without regard to the action of the board of county commissioners, or is the allowance of clerk hire to be determined by the board and in accordance with the action thereof.

It is difficult to reach any construction of the statute which leads to a satisfactory conclusion. Reading sections 4, 8 and 11 together, I am of the opinion, upon due reflection, that the clerk of the district court is authorized to procure assistance, without authorization by the board of county commissioners, and that the \$600 named in section 4 is available for such purpose. My first impression was to the contrary, but a subsequent study of the various provisions of the statute has led me to the view that such construction is foreign to the true intention of the statute. The law imposes upon the clerk of court the burden of performing all the duties pertaining to his office. The appropriation of \$600 is made for his relief, and while the statute is not free from ambiguity as to the manner in which this allowance shall be disbursed, I deem it proper to hold that it falls within the contemplation of section 9 providing that the salaries of officers and their clerks shall be paid monthly. It follows, therefore, that the \$600 should be distributed throughout the year in twelve monthly payments of fifty dollars each to the person or persons employed by the clerk of court under section 4. Section 11 is much relied upon by me in construing the provisions of section 4. The better view, in my judgment, to take of the language employed in section 11 is, that when it is made to appear to the board of county commissioners that the clerk of court has actually and necessarily expended the amount allowed him under section 4 for clerk hire, they may allow a further sum in accordance with the necessities of the case. Such further allowance will be governed wholly by the terms of the resolution of the board as to when and in what sums it shall be disbursed.

In view of the conclusion herein reached it will be unnecessary for me to specifically answer several of the questions propounded by you.

H. W. CHILDS, Attorney General.

April 15, 1895.

25

**FEES—A clerk of court is only entitled to a fee of fifty cents for issuing subpoena, whether same contains one or several names.**

ATTORNEY GENERAL'S OFFICE.

L. L. Manwaring, Esq., County Attorney,

Dear Sir: A clerk of court is allowed a fee of fifty cents for issuing and sealing every writ, summons, subpoena or process. As far as his compensation is concerned, it is a matter of no importance whether a subpoena contains one or several names. The law implies that he shall be compensated for the actual service performed; and, consequently, in all cases where several names are inserted in a subpoena, he can lawfully claim no more than the above fee.

H. W. CHILDS, Attorney General.

Oct. 1, 1895.

26

**FEES—The district clerk is entitled to fees on delinquent taxes on real estate when he returns his list to the county auditor.**

ATTORNEY GENERAL'S OFFICE.

Hon. D. M. Sullivan, County Auditor,

Dear Sir: You inquire whether the district clerk is entitled to fees on delinquent taxes on real estate from the day that he returns his list to the county auditor, or from the time judgment is rendered.

I am of the opinion that his fees are earned when the list is returned to the auditor. The mere fact that the land is redeemed before judgment is entered should not operate to deprive the officer of the fee prescribed for the services which he has actually rendered. The party redeeming is required to pay, if the statute is strictly complied with, the amount of such fees, whether redemption is made before or after judgment. I am therefore unable to perceive any just ground on which to hold that the fees inure to the clerk only after judgment.

H. W. CHILDS, Attorney General.

Feb. 8, 1896.



**FEES**—Fees to which a clerk of the district court is entitled in matters pertaining to the collection of delinquent taxes are governed by General Statutes 1894, section 1570.

William C. Brown, Esq., County Attorney.

ATTORNEY GENERAL'S OFFICE.

Dear Sir: The fees to which a clerk of the district court is entitled in matters pertaining to the collection of delinquent taxes are governed by General Statutes 1894, section 1570. The provisions of that section must be deemed exclusive. (Report Atty. Gen. 1894, No. 28.) Where the sheriff fails after diligent inquiry to find the defendant, the clerk is entitled to the sum of twenty-five cents for each citation. I assume that it was in such a case that the item of November 12th was charged. The item of November 14th falls under the first sentence of the section authorizing the clerk to receive for issuing citation and perfecting the judgment, \$1.50. Where parties appear and defend, the statute provides that the fees shall be such as are allowed by law in civil actions. I do not understand from your communication and the copy of the bill submitted that any of the charges were for contested cases.

Jan. 11, 1896.

H. W. CHILDS, Attorney General.

V.—COURT COMMISSIONER.

**UNORGANIZED COUNTY**—A vacancy in the office of court commissioner of an unorganized county may be filled by the judge of the district court for the district in which the county is situated, and not by the governor.

His Excellency, D. M. Clough, Governor.

ATTORNEY GENERAL'S OFFICE.

Sir: I beg to acknowledge receipt of petition of Mr. Martin and others, residents of Cook county, requesting the appointment of a court commissioner for that county. I am aware of no provision of law which confers upon you authority to make such appointment. If a vacancy can be deemed to exist in the office in the county named, it may be filled by the judge of the district court for the district in which the county is situated.

July 9, 1895.

H. W. CHILDS, Attorney General.

**FEES**—Court commissioner is entitled to a fee of fifty cents for taking bail or approving sureties on any bond or recognizance in a given case, whether same is of a civil or criminal character.

A. W. Annes, Esq., County Attorney.

ATTORNEY GENERAL'S OFFICE.

Dear Sir: The court commissioner is entitled to a fee of fifty cents for taking bail or approving sureties on any bond or recognizance. (Gen. Stat. 1878, chap. 70, sec. 32.) The law further provides that for all services rendered by a court commissioner, the same fees as allowed by law to other officers for similar services shall be paid. It is a matter of no importance whether a given case is of a civil or criminal character, so far as the compensation of the court commissioner is concerned. The statute having expressly provided a fee of fifty cents for taking bail, he will be entitled to the same, regardless of the character of the proceeding.

July 10, 1895.

H. W. CHILDS, Attorney General.



## VI.—DISTRICT JUDGES.

**COMPENSATION**—General Laws 1887, chapter 376, as amended, deemed a valid exercise of legislative authority and justifies the payment of extra compensation to the district judges of Ramsey county.

## ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Dear Sir: You call attention to the provisions of Session Laws of 1887, chapter 376, as amended by Session Laws of 1889, chapter 129, and inquire, in effect, whether in my opinion the act is a valid exercise of legislative authority.

The act in question directs the payment "out of the county funds" of Ramsey county of \$1,500 annually to each of the district judges. The purpose of such payment, as declared by the title of the original act, is to afford additional compensation to said officers. The county treasurer, acting under advice of private counsel, has declined to observe the provisions of the statute on the ground of unconstitutionality. It is objected that the act is void because—

1. District judges being state officers, it is beyond the power of the legislature to select one county, as attempted in this case, and compel it to pay out of its funds the whole or any part of the salaries of such judges, or other state officers, except so far as it pays its ratable proportion like all other counties in the state. This is regarded as offensive to section 1 of article 9 of the state constitution.

2. It provides for unequal taxation, in violation of section 1 of article 1 for direct double taxation.

3. It compels the county to bestow a gratuity upon the district judges.

I am unable to subscribe to either of the above contentions, and believe them overthrown by the following considerations:

The constitution of this state provides that "The judges of the supreme and district courts shall be men learned in the law and shall receive such compensation at stated times, as may be provided by the legislature." (Article 6, section 6.) The legislature is thereby invested with full discretionary power, subject to a limitation elsewhere provided, to deal with the subject of compensation of such officers. It is within that power to provide that such compensation shall rest either upon the state at large or upon judicial districts, or counties, according to such just rule of apportionment as the legislature might provide. So far as the question of legislative power is concerned, it is a matter of slight importance at best whether district judges be deemed state, district or county officers. It is enough to know that they form part of the judicial system of the state, with duties and powers peculiar to the whole state and to every political subdivision thereof. The legislature has provided a salary of \$3,500 per annum to the district judges, payable out of the state treasury. In so doing, it treats all persons and localities alike. Is it consistent to concede that such compensation might be imposed upon judicial districts and deny that the state may provide for it to a given extent from its treasury and beyond that impose it upon counties or districts, according to benefits received? The concession cannot be harmonized with the denial. It is the same in principle whether the state provides at the outset that counties or districts shall sustain the whole burden or that the state will assume it to a certain extent. The provision of the constitution above quoted is ample warrant for the latter course. I concur in the view expressed in one of the briefs of counsel that the apportionment of the burden of tax between the whole state and the locality found by the legislature to be specially interested or benefited is a governmental question addressed to legislative discretion, and when so determined it is not to be disturbed save in case of an oppressive abuse of that discretion.

It is, in my judgment, a mistaken view of the law that the statute results in duplicate taxation. The illustration of Judge Cooley, now mentioned because of the eminence of the authority, and referred to by counsel, is quite appropriate. Speaking of a tax levied for the erection of a state capitol, that learned authority says:

"It would be clear, we should say, that such a tax should be spread over the state at large, because the purpose is a state purpose, and every individual in the state is directly interested in its accomplishment. But it is also apparent that the people and the property at the place upon which the structure is proposed to be constructed would receive special and probably very great benefits in consequence of the construction, beyond what they would receive in common with all others." (Cooley on Taxation, 2d Ed. 153.)

The element of double taxation does not enter into the question. The local tax is provided to compensate for additional benefits. There is no other taxation for such purpose. It was competent for the legislature to take cognizance of the increased duties incidental to the judicial office in Ramsey county and to provide that the just compensation which should be awarded for the correspondingly increased labor of the incumbent should be borne by the taxpayers of the county. The supreme court of this state has said that when taxes are "distributed on just principles, applicable alike to all for whose benefits the appropriation is made or intended, substantial equality is attained, and no constitutional right is involved." (Comner vs. Folsom, 13 Minn. 205.)

The policy of distribution of expenses according to benefits enjoyed has long been recognized in the legislation of this state, with the approval of its courts. (Guilder vs. Town of Otsego, 20 Minn. 74; Maltby vs. Tautges, 50 Minn. 248.) Moreover, the power to tax includes the power to apportion the tax. (Gordon vs. Coms., 47 N. Y. 608.)

Nor am I able to discover in the said statute a purpose to bestow a gratuity upon the district judges. It was plainly designed to provide compensation for services rendered.

A law should not in any case be declared invalid unless clearly in conflict with constitutional provisions; and this rule is all the more imperative when a statute has long existed and has been repeatedly recognized as valid by the legislature and public officers. The statute in question, modified in form, has been observed for many years. It has the merit of being wise and just, and is not in my opinion repugnant to any provision of the constitution of this state.

You are therefore advised that it is the duty of the county treasurer to pay the orders drawn upon him for the salaries of said officers.

H. W. CHILDS, Attorney General.

March 29, 1895.

31

#### VII.—SHERIFF.

**FEES—A sheriff is not entitled to compensation out of the county treasury for taking a convict to the state reformatory.**

ATTORNEY GENERAL'S OFFICE.

Mr. A. H. Anderson, County Auditor,

Dear Sir: A sheriff is not entitled to compensation out of the county treasury for taking a convict to the state reformatory. Compensation for such service is governed by General Laws 1889, chapter 254, section 29. (See, also, General Laws 1893, chapter 114, section 2, and General Laws 1870, chapter 39.)

Where the sheriff makes an attempt in good faith to arrest a party and fails to make the arrest, he is entitled to mileage for the distance actually and necessarily traveled by him while engaged in an earnest effort to make such arrest. (Op. Attys. Gen. 403.)

Where a bill has once been disallowed by the board of county commissioners and the claimant fails to take his appeal from the order of disallowance within the thirty days prescribed in the statute, the claim cannot be revived by the presentation of a new bill at some future time, either before the same or another board of the same county. (Op. Attys. Gen. 329.)

H. W. CHILDS, Attorney General.

Jan. 18, 1895.

**COMPENSATION**—The sheriff is not entitled to compensation for infliction of death penalty. The expense for gallows, etc., may properly be allowed by the board of county commissioners. The sheriff may select a physician to attend the execution, but he shall be entitled to no compensation from the county for such attendance.

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Dear Sir: The law provides no compensation to the sheriff of Ramsey county for the infliction of the death penalty upon a person sentenced to receive such punishment. It is a well-established principle of law, that a public officer is entitled to no other compensation for official duty than what is expressly authorized therefor.

The expense to which he is necessarily subjected in providing the requisite gallows and inclosure for carrying out the sentence, may properly be allowed by the board of county commissioners.

The sheriff is not required to procure the attendance of a physician at the execution, the statute being merely permissive in this respect. He is allowed to select the physician or surgeon who shall be allowed to attend, but the one so selected will be entitled to no compensation from the county for such attendance.

H. W. CHILDS, Attorney General.

Jan. 16, 1895.

33

**FEES**—County commissioners may allow sheriff for reasonable expenditures incurred by him in telegraphing with a view to the apprehension of a person against whom he holds a warrant.

**SCHOOL DISTRICT—DIVISION**—When a school district is divided under General Laws 1891, chapter 26, the schoolhouse is the property of the old district. The authority of a guardian without judicial authority to petition on behalf of his ward for setting off the real estate of the latter for a given district, is extremely doubtful.

ATTORNEY GENERAL'S OFFICE.

J. O. Haugland, Esq., County Attorney,

Dear Sir: While the statute has made no express provision therefor, I deem it proper for a board of county commissioners to allow to the sheriff the amount of expenditures reasonably and necessarily incurred by him in telegraphing with a view to the apprehension of a person against whom he holds a warrant. When such course is pursued, the county is generally greatly the gainer by it, and the officer may be deemed authorized by the county to incur the expense.

When a school district is divided under the provisions of General Laws 1891, chapter 26, the schoolhouse is the property of the old district, and is not to be treated as "funds" within the meaning of the term as employed in said statute.

The authority of a guardian without judicial authority to petition on behalf of his ward for setting off the real estate of the latter for a given district, is so extremely doubtful, that I question the propriety of entertaining such a petition. However, if pursuant to such a petition such real estate is set off, and remains in that status for the period of one year, I am of the opinion that whatever invalidity characterized the action of the board, would be cured by operation of the statute of repose.

H. W. CHILDS, Attorney General.

July 24, 1895.



**RESIDENCE**—County commissioners are not authorized to purchase house and lot as a residence for the sheriff and furnish fuel to heat the same.

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: You state that the county commissioners of Chippewa county have purchased a house and lot which are now occupied by the sheriff as his residence, and now inquire whether the county is authorized and required to furnish fuel to heat the same. I am aware of no provision of the statutes of this state which authorized the purchase of the said property by the county, and as such act is lawful only when expressly authorized, it is evident that those officers have exceeded their authority in such regard.

Some confusion seems to have arisen from a provision found in General Laws 1893, chapter 157, section 15, which authorizes the board of county commissioners to furnish "fuel for the jail and sheriff's residence." This has improperly been deemed authority for furnishing fuel to the sheriff for his residence in all cases. This office held, however, under date of Oct. 26, 1893 (Report 1893, No. 44), that the statute has reference only to cases "where the residence is a county building." The opinion contemplates, of course, buildings which a county is authorized to own. It may be that the commissioners of Chippewa county based their right of purchase upon the statute of 1893; if so, it was a very unfortunate construction of the terms thereof. That act, its title clearly indicates, contemplates the construction of "county jails." Nothing could be further from its purview than the erection of a separate building by the county as a sheriff's residence. In several of the counties of the state apartments have been provided as part of the jail building, designed for the accommodation of the sheriff. There is, however, no law which requires him to occupy them as the abode of himself and family. But if they are so occupied, and perhaps in those cases where counties have been authorized by special laws to provide a residence for that officer, if any such cases exist, it will be proper for the county to act under the law of 1893 and supply requisite fuel to warm them. In no other case does the authority exist. Your question is therefore answered in the negative.

H. W. CHILDS, Attorney General.

Nov. 25, 1895.

#### VIII.—COUNTY SURVEYOR.

**COUNTY SURVEYS**—The law implies that surveys for the county shall be performed by the county surveyor.

ATTORNEY GENERAL'S OFFICE.

C. L. Benedict, Esq., County Attorney,

Dear Sir: While the statute relative to the office of county surveyor is in some respects loosely drawn, it implies, I think, that the surveys shall be conducted by that officer. I fail to see on what ground he may claim his office to be involved in the work of constructing a bridge. If any surveys are necessary in locating the approaches to such a structure, he might then, with propriety, claim that service falls within the sphere of his duties; but beyond that he has nothing to do, by virtue of his office, with the conduct of the work. If the board of county commissioners deem it advisable to employ some suitable person to superintend it, they are at liberty to employ whomsoever they shall be pleased to select. It therefore follows that the county surveyor cannot justly claim compensation for such work, unless actually employed thereat, and then only what the board may contract to pay him. He would not be thus employed by virtue of his office.

When a county surveyor is employed to make given surveys for a county, the limit of his compensation is that prescribed in the statute, namely, four dollars per day. He is entitled to nothing by way of expenses.



When a claim is allowed by the board of county commissioners, an appeal therefrom may be taken in one of two ways: (1) By the county attorney in any case upon his own motion. (2) When the amount thereof exceeds twenty-five dollars he is required to act by the request of seven taxpayers.

I am aware of no provision of law which requires him to move in such regard at the instance of the county surveyor, or any other person. Save when required to take an appeal in the second case, above named, he is vested with discretionary power.

H. W. CHILDS, Attorney General.

Aug. 9, 1895.

36

### CORPORATIONS.

**CONSOLIDATION—FEES**—The statutes do not contemplate that a company consolidating under the statutes of this state shall be subject to the fees prescribed for the incorporation of companies.

ATTORNEY GENERAL'S OFFICE.

Hon. Albert Berg, Secretary of State,

Sir: I have considered the question submitted by you as to the liability of the Minneapolis & St. Louis Railway Company consolidation, to the payment of fees as a prerequisite to the filing of the articles of consolidation adopted by the consolidating companies. It is my opinion that such fees cannot properly be exacted. It is expressly provided by the statutes of this state that the consolidated corporation shall succeed to all the rights, powers, franchises, contracts, privileges, etc., as fully in all respects as the same were possessed by the old corporation. It would be foreign to the contemplation of such provisions of law to deem the act of consolidation and incorporation within the meaning of the law requiring the payment of incorporation fees.

H. W. CHILDS, Attorney General.

April 4, 1895.

37

**APPROVAL OF ARTICLES OF INCORPORATION BY ATTORNEY GENERAL**  
—The attorney general is not now required to indorse his approval upon articles of incorporation of any other than religious corporations.

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner,

Sir: The attorney general is not now required to indorse his approval upon articles of incorporation of any other incorporated companies than religious corporations. An act was passed in 1889 relieving him of such duty, because past experience had demonstrated that companies were advertising to the world that their incorporation had been approved by that officer. (See Gen. Stat. 1894, sec. 3396.)

H. W. CHILDS, Attorney General.

May 12, 1896.

38

### EDUCATION AND SCHOOLS.

**SCHOOL DISTRICT—FREEHOLDER AS PETITIONER**—A freeholder is competent to sign a petition for the purpose of setting off a portion of a school district.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: The question has been raised whether territory lying within one district may be set off and annexed to another district upon petition of any other person than a freeholder.

From a careful consideration of the subject, I am of the opinion that the statute contemplates a petition signed by a freeholder. While there is no such limitation expressed in General Statutes 1894, section 3673, yet, when read together with the succeeding section, such a limitation must be implied. The third proviso of section 3674 is to the effect, "that upon a petition of any legal voter to said commissioners, stating that it is the desire of the petitioner to be set off from the district in which he then is to some district adjoining the same, which petition shall show that the petitioner is a resident of and freeholder in the district from which he desires to be set off," etc., the commissioner may thereupon, in a proper case and in compliance with the requirements of the statute, grant the request of the petitioner. This would seem to be decisive of the question, and you are so advised.

H. W. CHILDS, Attorney General.

May 12, 1896.

39

**APPORTIONMENT**—The apportionment accrues to the benefit of the schools of the county which are entitled to receive it. Moneys should be distributed among such districts as have complied with the requirements of the law.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction.

Sir: You state that several of the county auditors have reported that considerable sums of money will be forfeited in their counties in this year in making the apportionment of public money by reason of the failure of districts to raise sufficient special tax to entitle them to the amount that would otherwise be apportioned to them. Such forfeitures arise pursuant to Compiled School Laws, section 132. You inquire what disposition shall be made of the accumulations in counties arising from such forfeitures, and advise me that your office has previously adopted the view that they should be distributed to the remaining districts of the county.

The apportionment accrues to the benefit of the schools of the county which are entitled to receive it, and it is my opinion that you have adopted the correct view as to the proper disposition of moneys accumulated by reason of such forfeitures. They may be distributed among such districts, upon a proper basis, as have complied with the requirements of the law in such respect.

H. W. CHILDS, Attorney General.

Nov. 26, 1895.

40

**SCHOOL DISTRICT**—A change in county lines will not operate, in the absence of an express statute to the contrary, in affecting the territorial area of a school district, which, subsequent to such change, will lie within both counties.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction.

Sir: I am presented with a statement of facts by Mr. E. E. Bernard to the effect that certain territory was formerly organized into a school district in the county of Cass pursuant to a special act of the legislature of 1883. Subsequent to the organization thereof, the legislature detached from Cass county and attached to Crow Wing county, a portion of such territory. I am now asked what effect, if any, the transference of the political jurisdiction over the territory so attached to Crow Wing county had upon the school district.

A school district is a political organization not necessarily dependent upon county lines. The statutes not only recognize but expressly authorize the formation of districts composed of territory lying within two or more counties. (Common School Laws, sections 15, 28, 76.) The district in question

was not affected by the act of 1891, and must still be deemed a portion of the original district. If it is now desired by the residents of the portion lying within Crow Wing county to detach the same from the existing district, they should petition the board of county commissioners of Crow Wing county to that effect.

In answer to a further inquiry of Mr. Bernard, he should be advised that neither of the counties named is authorized to build a schoolhouse in any portion of the said district. Such improvements are to be made, if at all, by the school district and not by the county at large.

H. W. CHILDS, Attorney General.

May 22, 1896.

41

**VOCAL MUSIC**—An independent district has the right to provide for instruction in vocal music. An instructor in vocal music is not a teacher within the meaning of the school law, and a contract for such service does not fall within the purview of section 47 of the said law.

ATTORNEY GENERAL'S OFFICE.

Hon. W. E. Culkin,

Dear Sir: The department of public instruction have long recognized the right of an independent district to provide for instruction in vocal music. The authority for the practice is somewhat questionable, but as it is a matter in which the statute should, at this late day, be liberally construed, I should be disposed to hold, if the question was raised by the state superintendent, that the authority flows from section 150, subdivision 8 of the Compiled School Law.

An instructor in vocal music is not a teacher within the meaning of that term as employed in the school law. He is not subject to an examination, as an ordinary teacher, and is not required to possess the literary qualifications of the teacher. A contract for such service does not, therefore, fall within the purview of section 47 of the said law.

H. W. CHILDS, Attorney General.

April 3, 1896.

42

**ADMISSION—PORTION OF YEAR**—The board of trustees for a school district has no authority to exclude a child of school age from attendance at school during any portion of the school year.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: The law has not vested a board of trustees in a common school district with authority to exclude a child of school age from attendance at school during any portion of the school year.

Such a child is entitled to admission, whether the minimum age be reached at the beginning or the middle of the school year or of any term thereof. The statute provides in express terms that the teacher "shall receive all persons sent to him between the ages of five and twenty-one years, residing in the district." Furthermore, the board of trustees are authorized to "exclude from the public school of the district, all children under six years of age." (Compiled School Laws, sections 56, 60.)

The foregoing provisions of statute fully dispose of the question and necessitate an answer in the negative.

H. W. CHILDS, Attorney General.

April 11, 1896.



**COMPENSATION—ASSISTANTS TO COUNTY SUPERINTENDENT**—The county commissioners may allow compensation, to be paid out of the county treasury, to assistants appointed by the county superintendents of schools to take charge of examinations pursuant to General Laws 1895, chapter 17, section 3.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Sir: Calling attention to General Laws 1895, chapter 17, section 3, wherein it is provided "that the county superintendents of schools shall have power to appoint assistants, not to exceed one for each township in the county, to take charge of examinations held under the general direction of the high school board," you inquire in what manner compensation is to be afforded to such assistants for the services thus performed.

It is evident that the statute contemplates that the expenses incident to such services should be a public charge, else no limitation would have been imposed as to the number which the superintendent is authorized to appoint. I deem it proper to hold that the board of county commissioners may allow such compensation to the appointees as it may deem just and reasonable, and direct the payment thereof out of the county treasury.

Feb. 6, 1896.

H. W. CHILDS, Attorney General.

**LORD'S PRAYER**—The practice of reciting the Lord's Prayer in the public schools is in violation of the constitution of this state.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Sir: You inquire whether it is lawful to open a public school with a recital of the Lord's Prayer.

The question involves a construction of section 16 of article 1 of the constitution, wherein it is, among other things, provided: "Nor shall any man be compelled to attend, erect or support any place of worship."

In the absence of that provision, I should not hesitate in answering your question in the affirmative. Indeed, there is a strong array of well considered cases in states whose constitutions are not thus characterized, to the effect that it is a question for the school authorities to determine whether or not a public school shall be opened with prayer and the reading of the scriptures. Wisconsin and Minnesota, so far as my examination extends, stand alone in respect to such a provision. In the first named state, the supreme court, after exhaustive argument and in a carefully considered opinion, held that the reading of the scriptures in a public school was in violation of the constitution in that it compelled one to support a place of worship. (State vs. School District, 76 Wis. 177.) No occasion has arisen for a construction by our own court of the said provision. It was held by one of my predecessors at an early day, and sometime prior to the decision reached by the Wisconsin court, that the reading of the scriptures is a matter over which the board of education or board of trustees has complete control. (Op. Attys. Gen. 83.) But on a later occasion it was said that, "when the use of the scriptures in a common school is objected to by the parents or guardians of pupils on account of religious or conscientious scruples, their adoption as a text-book is improper and the pupil may decline to use them for the same reason, without being liable to be deprived of the privileges of the school." (Op. Attys. Gen. 229.)

No distinction can in principle be drawn between the opening of a school with prayer or the reading of the scriptures, so far as the question pertains to the violation of the provision above named. If one is unlawful, the other is also.

It is the purpose of the law of this state to permit no intrusion into our public schools of any religious teachings whatsoever. They are to be kept



purely secular in character, and as places where the children of parents of every shade of religious belief may assemble for purposes of instruction in authorized subjects and incidental moral improvement. The judicious teacher will never attempt to institute such a practice in schools against the wishes of the parents of his pupils.

In view of the decision by the Wisconsin court, you are advised that the practice, however frequently tolerated or indulged in, is violative of the constitution.

H. W. CHILDS, Attorney General.

Dec. 10, 1895.

45

**NORMAL SCHOOLS**—Normal school board has authority to adopt a rule that ladies and gentlemen attending the same "will not be permitted to board in the same family."

ATTORNEY GENERAL'S OFFICE.

Hon. W. B. Mitchell, Resident Director, State Normal School,

Sir: You state that the normal school authorities located at St. Cloud have adopted a rule to the effect that ladies and gentlemen attending the same "will not be permitted to board in the same family," and inquire whether such a regulation is an exercise of lawful authority. The rule excepts, I assume, persons who are kindred to each other.

The statute provides that the normal school board "shall adopt any rules and regulations deemed necessary to the highest efficiency of the school." I assume that the rule in question was adopted pursuant to such authority. If so, the only question which can now arise is, whether it reasonably tends to the efficiency of the work of the institution. I am advised by the superintendent of public instruction that a similar rule has been adopted by most, if not all, of the other normal schools of the state. The purpose of the rule is, of course, to exercise a salutary restraint over the young people who are attending the normal school.

Under the statute the board has a very large discretion as to the adoption of rules, which will not be disturbed, save where such rules are manifestly unreasonable. It may further be noted in this connection that the board is authorized to prescribe "the condition of admission." While, of course, it has no legal authority to compel a student to change his or her boarding place, it may make a condition of admission to the school that students shall comply with its reasonable rules and regulations, including the one above named. It cannot be said that the rule is so manifestly unreasonable that a court would assume to declare it invalid.

You are therefore advised accordingly.

H. W. CHILDS, Attorney General.

Jan. 20. 1896.

46

**SCHOOL BUILDING**—Where an existing district contains two or more school buildings, a new district formed therefrom may include one of such buildings.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: The inquiry of Mr. Burwell, clerk of School District No. 52, Hennepin county, is governed by chapter 110, General Laws 1895, wherein it is provided that "no new district organized under the provisions of this act shall be so formed as to include the school building of any existing district, but where an existing district contains two or more school buildings, the district so formed may include not to exceed one of such buildings."

It does not appear from Mr. Burwell's letter whether the old district contained one or two schoolhouses. If it contained only one such building, the building clearly belongs to the old district. Assuming, however, that the dis-

trict contains two school buildings, the effect of chapter 110 is to convey title to the new district. It is always competent for the legislature, in disposing of any part of the territory of a municipal corporation, to make provision as to the disposition of buildings standing thereon. As to the personal property, if any, the title thereto is governed by the decision reached by the supreme court of this state in the case of *City of Winona vs. School District No. 82*, 40 Minn. 13, wherein it is held that: "If a part of the territory of a municipal corporation is separated from it by annexation to another or by its erection into a new corporation, unless some other provision is made in the act authorizing the separation, the old corporation remains subject to all its liabilities and retains all its property, including that which upon the change of boundaries happens to fall within the limits of the other corporation."

Dec. 14, 1895.

H. W. CHILDS, Attorney General.

47

**CERTIFICATE**—Where the superintendent of public instruction reverses the decision of the county superintendent and issues a certificate to teach, the county superintendent has no authority to revoke such certificate.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Sir: In your communication of the 23d inst. you raise the following question:

"If, under the authority conferred upon the superintendent of public instruction by chapter 182, General Laws of 1895, he reverses the decision of the county superintendent and issues a certificate, under what circumstances, if any, may the county superintendent annul said certificate issued by the superintendent of public instruction?"

The section contemplates that any reason upon which a license may be refused shall be a ground for an appeal to, and a review by, your department. The second paragraph of section five would seem to vest the state superintendent with power to decline to reverse the action of the county superintendent, although it may appear that he was in error in the respect assigned as a cause of grievance. Reversal is authorized only where it is ascertained upon appeal, "that the appellant is *in all respects* qualified to teach." The decision reached therein is to be final. It is the plain purpose of the statute to provide a summary and effective determination of the question of the qualification of the appellant to teach; and to this end the examination may be conducted *de novo*, and with such breadth of inquiry, whether as to literary or other qualifications, as the state superintendent may deem advisable. If, as the result of such examination, a reversal is ordered, a certificate is to be issued, not, however, by the county superintendent, but by the state superintendent. The statute has nowhere conferred upon the county superintendent authority to revoke such a certificate, and it must therefore be held that no such power resides in him.

Whether the state superintendent may revoke his own certificate thus issued, for cause subsequently arising, it is unnecessary to now decide, as your inquiry does not require it.

Oct. 28, 1895.

H. W. CHILDS, Attorney General.

48

**SCHOOL DISTRICT — GARNISHEED** — A school district cannot be garnisheed.

ATTORNEY GENERAL'S OFFICE.

A. F. Nordin, Esq., County Attorney,

Dear Sir: The weight of authority would seem to be against your position that a school district may be garnisheed. Public policy is deemed to be

Ex Docs. Vol. IV—70.

averse to permitting the garnishment of public bodies. A few states have taken the opposite view, but the weight of authority is evidently the other way. Your attention is called to the following cases in our own state: *McDougal vs. Board of Supervisors*, 4 Minn. 130; *Roder vs. Ames*, 33 Minn. 132. H. W. CHILDS, Attorney General.

Aug. 9, 1895.

49

**TEACHING OF PHYSIOLOGY—Certain questions relating to the teaching of physiology in the public schools considered and answered.**

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: I beg to acknowledge receipt of your communication of the 31st ult., in which you request my views upon the following questions submitted by the superintendent of schools of Ramsey county:

1. In reference to the teaching of physiology, does the statute include high schools?

2. Does the statute include the St. Paul teachers' training school established by the board and supported by public funds?

3. In your best judgment, does an occasional language lesson based on physiology meet the requirements of the statute, this subject being of such vast importance? Would such instruction be considered sufficient in any other equally important subject?

4. What do you understand by the statute when it provides that text-books shall be furnished for the study of physiology? Is not the fair interpretation that pupils of proper age and acquirements shall get their information from text-books as in other studies?

1. A high school, constituting part of a system of public schools, falls within the language used in my former communication, when I said: "A systematic and regular instruction in those subjects does not require daily or weekly instruction, or instruction in every grade. It is a sufficient compliance with the law when the general system of education adopted by the board embraces appropriately in its course a reasonable amount of instruction in physiology and hygiene by aid of text-books so prepared as to emphasize and illustrate the pernicious effects of the use of stimulants and narcotics."

If ample provision has been made for instruction in physiology and hygiene in the lower grades, it need not be pursued in the high school. This is a question to be determined by the existing facts.

2. As to instruction in training schools, you were definitely advised in my former communication. While I am unable to approve the policy of omitting from such a school a branch of instruction, the adoption of which in the curriculum of public instruction is made so imperative by express statute, I nevertheless am of the opinion that the training school does not fall within the purview of the statute.

3. In view of what was said in my former communication, I fail to perceive why the third question is propounded. You were then plainly advised that, speaking with reference to a system of schools like that maintained in St. Paul: "It is for its board of education in a fair endeavor to observe the requirements of the law, and, subject of course to your review, to determine to what extent, in what grades, and by what means instruction upon the subjects named shall be imparted."

4. Little, if any, distinction can be drawn between text-books on physiology and hygiene and those on any other common subjects taught in the public schools. As I said formerly, so I now say: "The essential thing is the instruction; the method pursued is a subordinate question. The importance of text-books, I need not suggest, is always more or less dependent upon the efficiency of the teacher. The question is administrative, and you will adopt such a policy as in your judgment will best conduce to the desired instruction."

Undoubtedly the statute contemplates the preparation of a course of study upon the subject by means of text-books, but whether such books shall be



placed in the hands of pupils must be left to the sound judgment of the governing body. A diversity of views will always exist as to the most effective method of teaching many subjects. This is especially true of the subject of physiology and hygiene. As to those above named, it is, as already suggested, for the administrative body to say whether the books shall be in the hands of the pupil or the teacher

June 4, 1895.

H. W. CHILDS, Attorney General.

50

**TEMPERANCE HYGIENE—Certain questions relating to instruction in temperance hygiene considered and answered.**

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Sir: In your communication of the 11th inst. you request my views in reply to the following questions:

1. Does chapter 123, Laws of 1887, make it the duty of boards of education and trustees of schools supported in whole or in part by public funds, to make provision for instruction in "temperance hygiene" in high school departments of the public schools, it having been made a part of the regular course of instruction in all the preceding grades?

2. What minimum amount of instruction or of time given to instruction in the subject mentioned above may be regarded as a compliance with the law?

3. Is it necessary that the pupils themselves should be supplied with text-books or will text-books in the hands of teachers be considered a compliance with the law?

4. If the instruction in the above named subject has hitherto been deficient or faulty and the matter is at once rectified with sufficient assurance that it will hereafter be given in accordance with law, and from now on is so given, will it be the duty of the state superintendent to withhold one-fourth of the apportionment?

5. In schools that maintain a training school for the preparation of teachers, is instruction in "temperance hygiene" required the same as in other departments of the school?

The statute in express terms requires "a systematic and regular instruction in physiology and hygiene, including special reference to the effects of stimulants and narcotics upon the human system." What shall constitute such instruction must, from the nature of the case, be confided very largely to the sound judgment of those vested with the charge of public schools, subject to revision by your department.

The terms of the law must in every case be construed in the light of the facts presented. While those terms are sufficiently comprehensive to embrace all teachers, and must be deemed to do so if the letter of the law only is to be consulted, it is obvious that it was never intended to give it so broad a construction. Where a city like St. Paul has organized a graded system of instruction beginning with the primary department and culminating in the high school, it is for its board of education, in a fair endeavor to observe the requirements of the law, and subject, of course, to your review, to determine to what extent, in what grades and by what means instruction upon the subjects named shall be imparted. A "systematic and regular instruction" in those subjects does not require daily or weekly instruction, or instruction in every grade. It is a sufficient compliance with the law when the general system of education adopted by the board embraces appropriately in its course a reasonable amount of instruction in physiology and hygiene by aid of text-books so prepared as to emphasize and illustrate the pernicious effects of the use of stimulants and narcotics. The expression "all teachers" found in the statute must, as above observed, be read as qualified by the facts of a given case. Applied to common school districts, it is difficult to perceive a case where a teacher does not fall within its purview; but when used with reference to a system of graded schools, and especially to a high school where



teachers are graded or classified, many of whom are subordinate to a principal, it is apparent that a literal application would do violence to the plain intent of the statute.

Bearing in mind the purposes of the law, there is little occasion for doubt or confusion in applying it. It seeks to incorporate into our system of common school education as a distinctive feature, a knowledge of physiology and hygiene with special reference to the use of stimulants and narcotics. As comparatively few of the pupils who attend graded schools in cities or villages ever enter the high school, it would be an unwarranted disregard of the law to omit such instruction as part of the curriculum of the former institution. On the other hand, as the study of physiology and hygiene are subjects which are almost invariably pursued in the high school, it would equally violate the law to there give instruction in those branches without proper reference to stimulants and narcotics.

The law having vested you with authority to withhold the apportionment of the current school fund from a district failing or neglecting to comply with it in this regard, it necessarily confides to you the determination of the question of its requirements. For this reason, I have deemed it advisable to dwell at so great length in reply to your first question.

Any views heretofore emanating from this office in conflict with those herein expressed will be deemed modified accordingly.

2. In view of what has already been said, it will be unnecessary to specifically reply to your second question.

3. It may appropriately be left to the governing body of a school to determine for itself whether instruction shall be given with or without text-books in the hands of pupils. The essential thing is the instruction; the method pursued is a subordinate question. The importance of text-books, I need not suggest, is always more or less dependent upon the efficiency of the teacher. The question is administrative, and you will adopt such a policy as in your judgment will best conduce to the desired instruction.

4. It is left to your discretion whether the apportionment shall be withheld in a given case. The law is directory in this respect, and properly so. The withholding of an apportionment is a harsh measure and should not be inflicted upon a district unless it is obvious that the infraction has been willful.

5. The statute does not include a training school for the instruction of teachers.

H. W. CHILDS, Attorney General.

May 13, 1895.

51

**INDEPENDENT DISTRICTS—PHILOSOPHY AND HYGIENE—**The jurisdiction of a county superintendent in the matter of the teaching of philosophy and hygiene extends to the independent districts as well as the common school districts.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Sir: You request my views in response to the question raised by the superintendent of schools of Ramsey county. That officer inquires whether his jurisdiction in the matter of the teaching of philosophy and hygiene with special reference to the effect of stimulants and narcotics upon the human system extends to the independent districts as well as common school districts. From a careful reading of the provisions of General Laws 1887, chapter 123, it is my opinion that independent school districts fall within their contemplation.

H. W. CHILDS, Attorney General.

April 20, 1895.

**TEACHING IN FOREIGN LANGUAGE**—A common school district has no authority to provide for teaching in a foreign language one-half of the day.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Sir: You state that it is proposed in a certain common school district to teach in a foreign language in the forenoon and in the English language in the afternoon, and inquire if public funds can lawfully be employed to pay the teacher for the time he is engaged in teaching in the foreign language.

As the case is stated, it is proposed to conduct a public school in the afternoon only. The law provides that, "in every contract between any teacher and board of trustees or board of education, a school month shall be construed and taken to be twenty days or four weeks of five school days each." (Compiled School Laws, section 57.)

A school day has acquired, by long custom and usage, a well-defined meaning. The change proposed contemplates only one-half of such a day, and a contract made for such a day is void.

In further support of the view herein expressed, attention is called to section 59 of the Compiled School Laws, which authorizes instruction in a foreign language by a teacher capable of speaking the same for a period of "not to exceed one hour in each day." By virtue of a well-established rule of construction, the last named provision is prohibitive of the contemplated change. It would, in my judgment, be an unwarranted innovation upon the system of public instruction established in this state.

April 26, 1895.

H. W. CHILDS, Attorney General.

**WOMEN VOTE**—Women may vote upon the question of fixing the site for a schoolhouse.

ATTORNEY GENERAL'S OFFICE.

V. B. Seward, Esq., County Attorney,

Dear Sir: It was held by my immediate predecessor that a woman is qualified to vote upon the question of issuing district bonds for the erection of a school building. I see no reason why she may not, with equal propriety, vote upon the question of fixing the site for a schoolhouse. The language of the constitution, as well as that of the statute enacted thereunder, is, as you have no doubt observed, very broad, and it is difficult to perceive where a line of demarcation is to be drawn defining the rights of a woman voter under such statute. I have entertained some doubt as to whether the statute contemplates her right to vote upon such questions, but am disposed to follow the interpretation placed upon it by my predecessor.

Feb. 21, 1895.

H. W. CHILDS, Attorney General.

**WOMEN VOTE**—Women may vote upon the question of the issuance of bonds for the purpose of erecting school buildings.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,  
Dear Sir: You submit for my views the question whether or not a woman can vote upon the question of the issuance of bonds for the purpose of erecting school buildings.

The question was answered in the affirmative by this office under date of July 23, 1892. In view of the language both of the constitution and the

statute enacted in pursuance thereof, I deem the decision of my predecessor a correct exposition of the law and shall follow it.

The unofficial communication of this office under date of Feb. 14, 1895, is therefore overruled.

H. W. CHILDS, Attorney General.

Feb. 21, 1895.

55

**PERMANENT SCHOOL FUND**—Moneys belonging to the permanent school fund cannot be used for the purpose of constructing normal school buildings.

ATTORNEY GENERAL'S OFFICE.

Hon. Peter E. Hanson, State Senate,

Dear Sir: You inquire whether moneys belonging to the permanent school fund may be used for the purpose of constructing normal school buildings.

The question depends upon the construction to be placed upon the terms of our constitution. That instrument provides that "the proceeds of such lands as are or hereafter may be granted by the United States for the use of schools within each township in this state shall remain a perpetual school fund to the state. \* \* \* The *principal* of all funds arising from sales, or other disposition of lands, or other property, granted or intrusted to this state in each township for educational purposes, shall forever be preserved inviolate and undiminished; and the income arising from the lease or sale of said school land shall be distributed to the different townships throughout the state in proportion to the number of scholars in each township between the ages of five and twenty-one years and shall be faithfully applied to the specific objects of the original grants or appropriations." (Art. 8, sec. 2.)

In view of the explicit language employed in the foregoing provision of the constitution, I am of the opinion that it would be foreign to the purpose therein expressed to use any portion of said moneys for the purposes indicated by your inquiry. That the *principal* of the fund cannot be devoted to such purpose is too plain for argument; and the constitution having expressly provided that "the *income* [a term used in contradistinction to *principal*] shall be distributed to the different townships throughout the state in proportion to the number of scholars in each township," no authority resides in the legislature to make other disposition of it.

Your question is therefore answered in the negative.

H. W. CHILDS, Attorney General.

Feb. 25, 1895.

56

**EVENING SCHOOLS—ADMISSION**—The board of education of the city of Minneapolis has authority to provide a system of evening schools, and also provide for the admission of adults to such schools.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: I have considered the communication of the president of the board of education of Minneapolis in which he inquires, in substance, whether the said board is vested with authority to provide a system of evening schools free to all who might wish to avail themselves of the benefits thereof. The gist of his question is, whether the board can provide for the admission of adults to such schools.

The question is controlled by Special Laws 1878, chapter 157, section 1, as amended by Special Laws 1883, chapter 233, section 1. The board of education of that city is thereby empowered, among other things, to "make rules and regulations for the government of schools and for the employment and examination of teachers, and prescribe their powers and duties; and prescribing the description, grading and classification of scholars and their man-



agement and the course of instruction and books to be used, and all other matters pertaining to the government and welfare of schools."

In my judgment, the statute confers upon the board discretionary powers to make such regulations as they may deem proper for the admission of adults to either day or evening schools.

March 8, 1895.

H. W. CHILDS, Attorney General.

57

**PETITION—AMENDMENT**—The board of county commissioners may permit the amendment of a petition for the formation of a school district, when such amendment is assented to in writing by all of the persons signing the same.

ATTORNEY GENERAL'S OFFICE.  
Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: In your communication of the 18th inst. you inquire whether the board of county commissioners is authorized to permit the amendment of a petition for the formation of a school district, when such amendment is assented to by all of the persons signing the said petition.

It appears that in a certain proceeding a tract of land is embraced in the petition which it is desired to eliminate therefrom. All of the persons petitioning for the formation of the district are willing to have the petition so amended as to form a district which shall not embrace the said territory.

There is no doubt, in my opinion, as to the authority of the board of county commissioners to allow an amendment of the petition in such regard, when assented to in writing by all of the persons signing the same.

Dec. 21, 1894.

H. W. CHILDS, Attorney General.

58

**REMOVAL OF INCOMPETENT TEACHER**—The superintendent of schools of a county is authorized to cite a teacher before him to answer the charge of incompetency, and if, upon proper investigation, it is ascertained that the charges are sustained, he may suspend the operation of her certificate of qualification.

ATTORNEY GENERAL'S OFFICE.  
Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: In your communication of the 28th ult., you state that a certain common school district has employed a teacher who is found to be totally incompetent, although a graduate of a normal school of another state, and is holding a certificate by virtue of its approval by the superintendent of public instruction. The board has made a contract with her, it appears, for nine months' service, and in view of her proven incompetency now desire to terminate the contract. You inquire whether this may be lawfully done.

By section 1, chapter 34, General Laws 1893, in defining the qualifications requisite to a teacher within the meaning of the school law, it is provided that a diploma from a state normal school of another state, approved by the state superintendent of this state, shall constitute a certificate of authorization to teach in the schools of this state.

By section 2, chapter 72, General Laws 1891, provision is made to the effect that at the expiration of two years of actual teaching service, the diploma of a graduate of a state normal school may be indorsed by the president of such school and the state superintendent of public instruction, which indorsements make it a valid certificate authorizing the holder thereof to teach school within this state. By section 3 of the last named act, it is further provided that any county or city superintendent of schools, under whose supervision such graduates may be employed, shall have authority to suspend such certificate for causes duly shown, such suspension to be subject to the same appeal as is provided in the case of certificates issued by such county or city superintendent.



While in terms the provisions of section 3 have reference to a certificate issued pursuant to the provisions of sections 1 and 2 of the same act, it is my opinion that a certificate issued pursuant to the provisions of chapter 34, to a graduate of a normal school of another state, may be deemed to fall fairly within the contemplation thereof. It certainly is not within the contemplation of the statutes of this state that a district may be burdened with an incompetent teacher, with no avenue of escape therefrom.

You are therefore advised that the superintendent of schools of the county in question is authorized to cite the said teacher before him to answer the charge of incompetency, and if, upon proper investigation, it is ascertained that the charges are sustained, he may suspend the operation of her certificate of qualification.

H. W. CHILDS, Attorney General.

Dec. 11, 1894.

59

**TEXT-BOOK FUND—Disposition of excess in text-book fund considered and determined.**

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: You request me to advise you in reply to the following question of the county attorney of Sherburne county: "This county having on hand some \$400 or over to the credit of the text-book fund of some years ago when a special tax was levied for that purpose, would the commissioners have the authority to transfer the same to the general fund?"

It appearing that the purpose for which the money was raised will never be realized, there is no valid reason, in view of its small amount, why it may not now be converted into the general revenue fund. The question of the county attorney is therefore answered in the affirmative.

H. W. CHILDS, Attorney General.

July 13, 1895.

60

**TAXATION—It is the duty of taxing officers to levy taxes in accordance with the facts as they actually exist. No action will lie by one district against the other to recover the taxes paid by the owner of lands to the wrong district.**

ATTORNEY GENERAL'S OFFICE.

C. C. Kolars, Esq., County Attorney,

Dear Sir: The length of time ensuing between the date of separation of a portion of the territory of a school district therefrom, and the date of a subsequent levy of taxes for any school purpose, is a matter of no importance whatever, so long as it clearly appears that the former event antedates the latter. From your statement of facts I think you properly advised the district officers.

It appearing that certain lands have been erroneously recorded as lying within a given district, when in fact they are embraced within another district, presents no reason why the error should be continued. It is the duty of taxing officers to levy taxes in accordance with the facts as they actually exist. No action will lie by one district against the other to recover the taxes paid by the owner of lands to the wrong district, by reason of the error aforesaid. Your advice was proper in this respect.

If the director of the school district to which you refer willfully refuses to discharge his duty, he may be proceeded against under section 105 of the Penal Code, as he would thereby clearly be guilty of a misdemeanor within the meaning of that section.

The law making it the duty of the director and clerk to declare the office of treasurer vacant when that officer neglects for ten days to comply with the provision that he shall give a bond. I see no reason why the duty may not be enforced by a mandamus proceeding. While a court will not undertake to

direct whom the director and clerk shall select as treasurer, it will not hesitate to require that they proceed to make a selection of some one.

H. W. CHILDS, Attorney General.

Dec. 5, 1895.

61

**SALARY OF SUPERINTENDENT**—The salary of the superintendent of schools, subject to limitations named in the statute, is left to the discretion of the board of county commissioners.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction.

Sir: You ask whether the salary of a county superintendent of schools, when once fixed by the board of county commissioners, is fixed for the year; or, in case of an increase of school districts in the county, is his salary proportionately increased.

The statute prescribes both a minimum and a maximum limitation in respect to the salary of that officer. It shall not fall below "the rate of ten dollars for each organized district in the county, to be reckoned *pro rata* for the year from the time of the commencement of the first school in the district"; nor shall it exceed the sum of eighteen hundred dollars per annum.

It is evident that the salary, subject to the limitations named in the statute, is left to the discretion of the board of county commissioners. The law expressly provides that it "shall be fixed" by that body, and it contemplates that it shall be fixed early in the term. When once so fixed, it continues the same unless subsequently changed. It is to the determination of the board in such action that the county auditor looks in drawing his warrant. The action of the board will, of course, be based upon the number of districts in existence in the county. But I am of the opinion that the creation of new districts inures to the advantage of the superintendent, and deem it the proper course, where the maximum limit is not reached, for the board to fix the salary in the terms of the statute at the rate of ten dollars per district instead of a gross sum. It may be questioned, however, whether the superintendent would be entitled, in case of the creation of a new district, to more than such proportionate part of ten dollars as the time elapsing after the commencement of a school therein bears to the whole year. The compensation should in such case "be reckoned *pro rata* for the year from the time of the commencement of the first school in the district." (Sec. 10, Comp. School Laws.)

H. W. CHILDS, Attorney General.

Jan. 14, 1895.

62

**BONDS—LIMITATION OF ISSUES**—The effect of the proviso found in Compilation of School Laws, subdivision 6, is merely to limit the tax which may be levied in any year and has nothing to do with the question of the issuance of bonds.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction.

Sir: Calling attention to certain provisions of sections 32 and 39 of the Compiled School Law of 1891, you inquire whether the proviso found in the sixth subdivision of the first named section limits the amount to which a district may issue its bonds for building purposes.

The legal effect of the said proviso is merely to limit the tax which may be levied in any year, and, strictly speaking, it has nothing to do with the question of the issuance of bonds. Authority for the issuance of bonds was conferred by General Laws 1885, chapter 80, section 1, as amended by General Laws 1887, chapter 21, section 1. These enactments are subsequent to the one expressed in section 32, *supra*, and it is doubtful if they are in any way dependent upon or restricted by the terms of section 2. Power was thus conferred to issue bonds "in such amounts" as may be voted by a two-thirds vote of the legal

voters of the district. Until the question has been determined by the supreme court, the only prudent course is to assume that section 32 is a limitation even as to the amount of interest due upon bonds so issued which can lawfully be raised in any year by a tax levy.

H. W. CHILDS, Attorney General.

Nov. 9, 1895.

63

**HIGH SCHOOLS**—The high school at St. Paul falls within the contemplation of General Laws 1895, chapter 186.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Sir: It appears from the communication of the superintendent of schools of St. Paul that, in place of providing for a review of the common school branches in the last year of the course provided in the high school of the city, "a separate institution of higher grade than the high school and more than fulfilling the requirements of the law as to equipment, teachers and course of study" is maintained. Formerly the institution was regarded as closely associated with the high school and its course was substituted for the last school year. More recently the standard has been so raised that graduation from the high school is now made a prerequisite to admission to its classes. I assume that the high school maintains a four years' course and imparts instruction in the branches and to the extent required by the statute. The superintendent inquires whether the said institution falls within the contemplation of General Laws 1895, chapter 186.

The question may fairly be answered in the affirmative. The object of the statute is to encourage boards of education in providing normal instruction to young persons who have received the requisite high school training. While the said institution is not technically a part of the high school of St. Paul, it is so for all the intents and purposes of the statute. Only those who are graduates of the high school are admitted into it; it is part of the school system of the city and under the supervision of its board of education; and, moreover, it is designed to accomplish precisely what the statute contemplates.

In effect, it is sufficiently identified with the high school, being dependent for its classes, as already seen, upon the graduates therefrom, to come within the proper meaning of the statute.

H. W. CHILDS, Attorney General.

Nov. 5, 1895.

64

**STATUTE—REPEAL—EXAMINATION OF TEACHERS**—General Laws 1893, chapter 34, did not abrogate the provisions of law providing for the organization and regulation of independent school districts so far as the last named law provides for examinations of teachers by boards of examiners.

ATTORNEY GENERAL'S OFFICE.

Hon. W. W. Pendergast, Superintendent of Public Instruction,

Dear Sir: In your communication of the 5th inst. you ask if chapter 34, General Laws 1893, supersedes the provisions of law providing for the organization and regulation of independent school districts, so far as the last named law provides for the examination of teachers by boards of examiners in said districts.

The law of 1893 provides that no person shall be accounted a qualified teacher within the meaning of the school laws who has not a certificate in force issued as therein provided. The law providing for the organization of independent districts authorizes the appointment of a board of examiners on whom is conferred the duty of examining applicants for positions as teachers. No reference, by express terms, is made in the law of 1893 to the independent



district act. I am unable to reach the conclusion that it was the intention of the legislature to abrogate that special provision applicable to independent districts in the enactment of the law of 1893. The independent district act may, in my judgment, be so far regarded special in character, as to bring it within the rule of construction that a general law is not deemed to abrogate the provisions of an earlier special one, unless such purpose is clearly manifested in the terms of the later law. The legislature having made provision for a particular subject in a pre-existing law, it is generally held that the more general terms of a subsequent one do not evince a purpose of changing the policy of the state with regard to the particular subject. This view is all the more strengthened by the fact that neither the framer of the law of 1893 nor any of those who support it in its passage intended that it should apply to independent districts. Moreover, this view accords, I believe, with the one heretofore obtaining in your department.

It is therefore my opinion that your question should be answered in the negative.

Sept. 6, 1895.

H. W. CHILDS, Attorney General.

65

### ELECTION.

**MEMBER OF THE LEGISLATURE—CONTEST—**Certain questions considered and determined relative to legislative contest.

ATTORNEY GENERAL'S OFFICE.

Hon. W. E. Johnson, Chairman Committee on Elections of the Senate,  
Sir: I beg to acknowledge receipt of your communication of the 24th inst., in which you state that your committee request my opinion in reply to the following questions:

1. Does section 181 of chapter 4 of the General Laws of 1893 require that the notice served by the contestant on the contestee should specify that the contestant is a candidate or elector?

2. Does said statute require such notice to name two justices of the peace who shall officiate at the taking of the depositions and the time and place where they shall so attend?

3. Has the senate or its committee jurisdiction when the notice does not specify that the contestant is a candidate or elector and does not name two justices of the peace or any time or place?

1. The first question should be answered in the affirmative. The statute in express terms provides that "any candidate or elector of the proper county \* \* \* wishing to contest, etc., \* \* \* shall give notice." It should therefore clearly appear that the contestant is either a candidate or an elector. This view is fairly sustained by the following authorities: State, *ex rel.*, vs. Birler, 87 Ind. 320; Reynolds vs. State, 61 Ind. 392; Edwins vs. Knight, 6 Ohio, 375; Blanck vs. Pausch, 113 Ill. 63.

2. The second question should also be answered in the affirmative. The statute expressly provides that the contestant shall name "two justices of the peace of the county in which he resides, who will officiate at the taking of the depositions and when and where they will attend to take the same." This language of the statute is too plain to require construction.

3. The constitution of this state provides that the branch of the legislature "shall be the judge of the election returns and eligibility of its own members." (Art. 4, c. 3.) It is therefore unnecessary to state that it is not within the power of the legislature to impair the right thus conferred by the constitution upon such body; nor do I discover any intention manifest in the provisions of our general election law to intrench upon such provision of the constitution.

By section 17 of article 4 of the constitution, it is provided that "the legislature shall prescribe by law the manner in which evidence in cases of contested seats in either house shall be taken." Pursuant to such authority, the legislature has prescribed a law for the regulation of elections and has



made ample provision therein for the determination of conflicting rights to elective offices, including that of state senator. A candidate for an office cannot, with safety, disregard those provisions. They are binding upon him, and if he would preserve his rights he must pursue the remedies therein prescribed. One who has lost those rights by his own laches has no better standing before a legislative body as a contestant for a seat therein than any ordinary elector.

In view of the foregoing, it is unnecessary to touch upon the question of the jurisdiction of the senate in the case presented.

H. W. CHILDS, Attorney General.

Jan. 25, 1895.

66

**PRIMARY ELECTIONS**—The committee to whom a list of names and places of residence of electors voting at a primary election are to be furnished, is the county or city committee, as the case may be.

ATTORNEY GENERAL'S OFFICE.

Mr. H. H. Gokey, Chairman Republican Committee,

Dear Sir: Replying to yours of the 4th inst., I am of the opinion that the committee to whom a list of names and places of residence of electors voting at a primary election are to be furnished, is the county or city committee, as the case may be. The language of the statute is, "and also furnish to the chairman of the committee in the primary election," etc. Section 7 provides that "the duly authorized committee of the political party in issuing the call for a primary election in the city or county," etc. Section 2 furthermore provides that "when any political party desires to hold any primary election in any county or city it shall be the duty of the duly authorized committee of such political party for such county or city to publish a notice," etc.

My reading of the statute convinces me that the committee referred to in the last sentence in section 6 is as above suggested, the county or city committee.

H. W. CHILDS, Attorney General.

June 8, 1896.

67

**GENERAL ELECTION IN TOWNSHIP**—General election in township should be held where the last election, general or special, was held.

ATTORNEY GENERAL'S OFFICE.

Mr. M. J. Martin, Town Clerk,

Dear Sir: The general election law does not apply to township elections, and, therefore, the "preceding election" referred to in section 47 of the General Election Law is an election held thereunder.

The next general election in the township should be held at the place where the last election, general or special, was held under the general election law.

Care should be taken to give ample notice in order to avoid confusion among voters on election day.

H. W. CHILDS, Attorney General.

April 3, 1896.

68

**PRIMARY ELECTION**—The provisions of General Laws 1895, chapter 276, must be deemed mandatory.

ATTORNEY GENERAL'S OFFICE.

Hon. Tams Bixby, Chairman Republican State Central Committee,

Dear Sir: Calling attention to the provisions of General Laws 1895, chapter 276, entitled "An act relating to primary elections," you inquire whether

in my opinion the provisions of the said act are mandatory in character.

I have already had occasion to examine the act upon the same question, and then reached the view that it must be deemed mandatory. The provisions of the act throughout are clear and positive in character, affording no suggestion, as I view them, that the legislature intended them to be otherwise than as above suggested. A re-examination of the act confirms me in the view heretofore reached.

Feb. 17, 1896.

H. W. CHILDS, Attorney General.

69

## GAME AND FISH LAW.

**DISPOSITION OF FINES**—All fines collected from persons convicted of violations of the fish and game laws are to be paid into the county treasury, whether prosecutions are instituted by game wardens or private parties.

ATTORNEY GENERAL'S OFFICE.

Hon. S. F. Fullerton, Executive Agent, Game and Fish Commission,  
Dear Sir: In your communication of the 26th ult. you inquire, in effect, as to what is a proper disposition of fines collected from persons convicted of violations of the fish and game laws, when such prosecutions are not instituted by game wardens.

Section 42 of the game and fish laws is as follows:

"All fines collected or moneys recovered on any bond given to or contract made with the board of game and fish commissioners, or received by them from the sale of any birds, animals or fish, except for the board of game and fish commissioners of another state, territory or county, under any of the provisions of this act, shall be paid into the state treasury and be placed to the credit of such board, to be expended by them in the discharge of their duties and the enforcement of the provisions of this act."

It is at once seen that the statute contemplates no distinction based upon the manner of such prosecutions. In all cases instituted by game wardens or private parties, fines collected are to be paid into the state treasury, subject to subsequent disbursement as in said section provided. In addition to such fines, the statute makes provision for the disposition of "moneys recovered on bonds given to or contracts made with the board of game and fish commissioners, and moneys received by them from the sale of birds, animals and fish." Moneys arising from such sources are clearly distinguishable from those arising from penalties imposed upon persons convicted of violations of the law.

Sept. 4, 1895.

H. W. CHILDS, Attorney General.

70

**LEGISLATIVE OVERSIGHT — HUNTING WITH DOGS** — The prohibition against hunting with dogs if still in force must be deemed to apply to section 11 of the Game and Fish Law.

ATTORNEY GENERAL'S OFFICE.

C. A. Nye, County Attorney,

Dear Sir: You call attention to section 13 of the Game and Fish Law, and inquire what animals are therein contemplated.

By the terms of the section, the hunting of the animals mentioned in section 9 are prohibited. Section 9, however, has reference only to birds, and it is therefore evident that the prohibition has, by legislative oversight, been misplaced. This is manifestly so when reference is had to the pre-existing law. Section 9 of the law of 1891 prohibited hunting "with hounds or dogs any elk, moose, deer, antelope, buck, doe or fawn at any time." But that section was

radically amended in 1893 (chapter 124, section 7), so as to eliminate all reference to the animals originally named therein. Section 13 of the law of 1891 did not in terms refer to section 9, but when the act was revised in 1893, the first named section was so amended as to read as at present. Generally, if not always, the terms "animals" and "birds" are contradistinguished in the statute. As illustrative of this, see sections 8, 15, 23, 24, 25 and 27. Section 11 of the present game law is the section which refers to the animals mentioned in section 9 of the act of 1891. If, therefore, the prohibition against hunting with dogs is still in force, it must, in my opinion, be deemed to apply to section 11, rather than to section 9. The question is, however, of such a nature as to render it impossible to determine, with the utmost confidence, what construction will meet with the approval of the courts.

H. W. CHILDS, Attorney General.

Aug. 16, 1895.

71

### HOSPITALS FOR THE INSANE.

**FOURTH HOSPITAL FOR INSANE—PLANS AND SPECIFICATIONS—ARCHITECT**—The commission appointed to locate fourth hospital for insane have authority to procure detailed plans and specifications, and employ an architect for such purpose. They are not authorized to bind the state for the expense of said plans and specifications.

ATTORNEY GENERAL'S OFFICE.

Hon. Alvah Eastman, St. Cloud, Minn.,

Dear Sir: I beg to acknowledge receipt of your communication of the 26th inst., in which you submit, on behalf of the commission appointed to locate a fourth hospital for the insane, the following questions:

1. Is it the duty of this commission to procure detailed plans and specifications for the fourth hospital for the insane?
2. Have they power to employ an architect?
3. Are they authorized to bind the state for the expense of said plans and specifications?

It is the purpose of the act under which your board was organized, to have plans and specifications prepared with sufficient detail to enable the board to report to the next legislature with reasonable certainty the cost of the construction of necessary buildings. This implies authority to employ an architect for such purpose. The appropriation of \$2,000 must be deemed the limit of the amount of expenses which the board is authorized to incur, aside from the appropriation of \$15,000 for the purchase of lands for a site for the institution. It follows that your third question must be answered in the negative.

H. W. CHILDS, Attorney General.

Dec. 30, 1895.

72

**FEES OF COURT COMMISSIONER**—The law has made no provision for compensation to a court commissioner for the performance of duties in examining an insane person.

ATTORNEY GENERAL'S OFFICE.

Hon. Andrew O. Ofsthung, Judge of Probate,

Dear Sir: You ask what fees a court commissioner is entitled to for examining an insane person, and how they are to be paid.

By General Statutes 1878, chapter 70, section 32, a court commissioner is allowed for all other services than those expressly named therein, "the same fees as allowed by law to other officers for similar services." It follows that he is entitled to such compensation in matters pertaining to the commitment of an insane person as is allowed a judge of probate; but a judge of probate



is entitled to no compensation above his regular salary in such a case. There is, therefore, an unfortunate omission in the law, in that no compensation has in fact been provided for a court commissioner for the performance of such duties. In the absence of an express provision of the statute requiring it, a judge of probate is under no legal obligation to compensate a court commissioner, out of his salary, who acts in such regard in his stead.

July 10, 1895.

H. W. CHILDS, Attorney General.

73

**CUSTODY—Custody of insane persons by relatives subsequent to commitment, how regulated.**

Hon. Tory Thorson, Judge of Probate,

ATTORNEY GENERAL'S OFFICE.

Dear Sir: Sections 37 and 45, chapter 5, General Laws 1893 must be read together. It is the purpose of the former section to permit the relatives of a person adjudged insane to have the custody of him in lieu of the hospital authorities. It therefore authorizes the judge of probate in a proper case to intrust him at once to a relative instead of committing him to the hospital. When, however, he has been so committed, it is made lawful for the superintendent to transfer the custody of the patient to a relative, and in his discretion to exact a bond from such relative conditioned for his safe keeping; but in neither case does the patient pass beyond the power of control by the state. If the condition of the bond is broken in either event, the judge of probate in the one case, and the superintendent in the other, will undoubtedly be entitled to resume authority over the patient—the former for the purpose of committing him to the hospital, and the latter for the purpose of keeping him in custody therein.

Section 45, on the other hand, provides for the discharge upon recovery of a patient, whereby all right of further control or custody becomes terminated. Nothing but a new commitment can reinvest the superintendent with the right of control over the person thus discharged.

Feb. 2, 1895.

H. W. CHILDS, Attorney General.

74

**INEBRIATES—GUARDIANSHIP—The superintendent is not required to receive inebriate patients not under guardianship.**

Hon. Arthur Kilbourne, M. D., Medical Superintendent, Rochester State Hospital,

ATTORNEY GENERAL'S OFFICE.

Dear Sir: The statute does not expressly provide for the appointment of guardians over the persons and estates of inebriates. At the same time, the language of the statute implies that inebriates thus committed are under guardianship. The title of subchapter 15, chapter 46 of the Probate Law, as amended by General Laws 1893, chapter 116, is prefaced by the title, "commitment of persons under guardianship to the inebriate hospital." Throughout the provisions of the act relative to that subject reference is constantly made to the guardian of the inebriate. The guardian, for instance, is to have notice when application for commitment is made by any other person than himself. The act implies that the inebriate shall have reached a condition of mental incompetency, by reason of excessive drinking, which presents a proper case for the appointment of a guardian.

I am therefore of the opinion that you are not required to receive inebriate patients not under guardianship.

Jan. 22, 1895.

H. W. CHILDS, Attorney General.



**COMMITMENT**—The law requires that the warrant of commitment be accompanied by a certificate, under the seal of the probate court, signed by the judge thereof, showing when and where the inebriate was placed under guardianship, his age, trade or profession, if any, and his name and postoffice address.

ATTORNEY GENERAL'S OFFICE.

Hon. Arthur F. Kilbourne, Medical Superintendent, Rochester State Hospital,

Dear Sir: You state that you have recently received, pursuant to a commitment by the judge of probate of St. Louis county, a patient committed under the provisions of General Laws 1895, No. 62, being an act providing for the examination and commitment of inebriates to the special department for the treatment of inebriates in the Rochester hospital. It appears that the only paper delivered to you in connection with the said commitment was a warrant issued over the official hand and seal of the judge of probate of the said county, which in general conforms to the form prescribed in the said act. I note, however, that it omits the words "not to exceed one year from the date hereof."

You might properly have declined to receive the patient, as the statute was not properly complied with. Section 5 of the act in question requires the warrant to be accompanied by a certificate under the seal of the probate court, signed by the judge thereof, and which shall be delivered to the superintendent of the hospital with the warrant. This certificate is required to show when and where the inebriate was placed under guardianship, his age, trade or profession, if any, and his name and postoffice address. This is a prerequisite to the reception of the patient which should be strictly complied with. Rather than subject counties to the expense of a recommitment of inebriates, I would suggest that you advise judges of probate of the requirements of section 5, and request them to at once execute and supply you with certificates as therein required. If they fail to comply with your request in this regard, you will be justified in refusing to continue the custody of such patients.

H. W. CHILDS, Attorney General.

July 18, 1895.

**FEES FOR COMMITMENT**—Person authorized to convey an insane person to the hospital is entitled to two dollars per day and necessary disbursements. Witnesses in such proceedings are entitled to fees as provided by General Statutes 1878, chapter 70, section 8. A county from which resident of another county is committed to the hospital is entitled to remuneration from residence county for expenses thus incurred. County commissioners may allow reasonable compensation for conveyance of an insane person to another state.

ATTORNEY GENERAL'S OFFICE.

Hon. G. N. Edwards, Judge of Probate,

Dear Sir: The amendatory law of 1895 makes no provision regulative of fees in matters pertaining to the commitment of insane persons. The provisions of General Laws 1893, chapter 5, section 49, so far as applicable, must therefore be deemed in force. The person authorized to convey an insane person to the hospital is entitled to two dollars per day for the time necessarily employed in so doing, and necessary disbursements. Witnesses in such proceedings are entitled to fees as provided by General Statutes 1878, chapter 70, section 8.

It is doubtful if the county from which a resident of another county is committed to the hospital for the insane, is entitled to remuneration from the residence county for expenses thus incurred. The better practice would be to return such person to the residence county, to be dealt with by the authorities thereof.

No fees are expressly provided for the conveyance of an insane person to another state, but as the law expressly provides for such conveyance, the county commissioners may properly allow reasonable compensation for services thus performed and expenses necessarily incurred.

Aug. 5, 1895.

H. W. CHILDS, Attorney General.

77

**CUSTODIAL AND MEDICAL RELATIONS**—Certain questions propounded and answered touching the authority of the superintendent in respect to the custodial and medical relations of the wards of the institution.

Hon. H. A. Tomlinson, Superintendent St. Peter Hospital, ATTORNEY GENERAL'S OFFICE.

Dear Sir: You submit for my consideration the following questions:

1. Are the custodial and medical relations separate?
  2. Does the same sanctity pertain with regard to matters coming to or within the knowledge of the superintendent, as in the relation between physician and patient in private practice?
  3. Does the legal relation of the superintendent as "trustee" for the patient, empower or obligate him to guard as jealously everything relating to the personal or family affairs of the patient, that may come within his purview as superintendent, as it does the personal property found upon the patient?
  4. Will the general laws governing public officers and the specific statute governing hospitals for insane uphold the superintendent in claiming that all information as to commitment, existence of *non compos* and relation to the hospital lies in the records of the probate court, and, therefore, that the duplicate warrant of commitment and certificate of jury, as vouchers for the custody of the patient, are the only public documents relating to the patient in the hospital; consequently that the medical record of the patient, which is a purely "clinical history," in this hospital, is as private as the records of the general practitioner, except for such supervision as specially provided for concerning the lunacy commission and board of charities and corrections?
  5. Is the superintendent authorized or obligated to express an opinion, at the request of a third person, or give information concerning the condition of a patient in the hospital in any other way than on the stand as a witness, or in response to an order of court, when he has reason to believe that such opinion or information will have a bearing upon matters at suit concerning the personal affairs of the patient or the disposition of his property?
  6. Does chapter 5, General Laws of 1893 recognize a person committed to a hospital for insane as a criminal under custody, or as a sick person under treatment?
1. In a qualified sense, your first question should be answered in the affirmative. The superintendent sustains a dual relationship to the patient. He is at once a public officer invested with certain public duties relative to the management of his institution, and a physician having to do with the medical treatment of those who have been committed to his custody. All matters falling under the first head may properly be disclosed by him at pleasure; but knowledge acquired in his professional treatment of his patients is to be deemed privileged, and should not be divulged further than may be necessary for the welfare of the patient. Such knowledge embraces facts, directly or indirectly received, necessary to enable him to properly prescribe for his patient.
2. So far as a given fact pertains to the relationship of physician and patient, the same rule obtains as in the case of a private practitioner and his patient. Public policy sanctions the care of the insane by the state. When the state assumed the charge, it became incumbent upon it, as a necessary incident, to provide adequate professional treatment. The fact that a patient is treated by a physician supported at public expense does not present a rea-

son for an exception to the rule of privileged communications. The second question is answered in the affirmative, modified as above.

3. A hospital for the insane was not intended to be, and on grounds of public policy should not be, a bureau of information for the general public. The legislature has confided to the board of trustees abundant discretion for the adoption of all such rules as may be necessary for the welfare of the patients. (G. S. 1894, sec. 3458.) So far as such rules have been provided, the superintendent should observe them. In matters upon which they are silent, he should be governed by existing circumstances. The inquiries of relatives should receive prompt and full replies (sec. 3459). Upon the whole, admitting the propriety of exceptional cases, the superintendent will best discharge his trust by declining to disclose to nonrelatives any information flowing from his official and professional relationship.

In those cases in which the superintendent is called as a witness, he will, of course, be guided by the advice of counsel and the instructions of the court.

4. It would not be strictly accurate to answer your fourth question in the affirmative. The facts named by you are not private and privileged, as your question would imply, but public and available in a proper case to any litigant desiring them. How he may avail himself of them, is a question which it is now unnecessary to consider. It is enough to know that he must resort to legal process, if he would enjoy his right. This answer must be read in connection with what precedes.

5. The fifth question is substantially answered by what is said in reply to the third. As thus qualified, my answer is, no.

6. A patient committed to the hospital for the insane is never to be recognized as a criminal under custody, but always as a sick person under treatment. This is said with the qualification that convicts and persons under arrest upon the charge of criminal offenses cannot be allowed certain privileges which the law permits in other cases. Nothing could be more remote from the intention of the statute than the idea of punishment.

H. W. CHILDS, Attorney General.

May 21, 1896.

78

**CONTROL OF HOSPITALS—Certain questions in respect to the powers of the board of trustees and other officers intrusted with the care of hospitals for the insane, considered and answered.**

ATTORNEY GENERAL'S OFFICE.

Hon. H. A. Tomlinson, Superintendent Hospital for Insane,

Dear Sir: Without repeating your numerous questions, I will answer them in the order in which they are presented.

1. The board of trustees has general control of the hospitals for the insane and are given power to make the necessary by-laws for the government of the same, not inconsistent with the constitution and the by-laws of the state. The superintendent is required to conduct the management of the hospital in accordance with law, whether expressed in the statutes or the by-laws. In this respect he shares the responsibility with no other official. The by-laws in force prescribe rules and regulations which are at once his guide and protection. Section 12 of the law of 1893 confers upon him, by express terms, exclusive authority in the employment of attendants, servants and employes, and, subject to the revision of the board, the right of removing or suspending at pleasure any of the persons so appointed by him.

2. The foregoing is sufficient answer to your second question.

3. So, too, as to your third question.

4. The duties of the accounting officer as to his reports to the board should be prescribed in the by-laws, and, subject to the requirement that he shall follow the system prescribed in General Laws 1889, chapter 269, it is proper for the board to further provide in the by-laws the character and extent of his duties. It is the duty of the superintendent to see to it that the accounting officer shall perform his duties as thus prescribed. As the superintendent has the power of removal of such officer, there is no valid reason why he



should not be held responsible for the faithful performance of his duties. If the board should in any case refuse to sustain the action of the superintendent in such respect, he will no doubt be thereafter relieved of responsibility to that extent.

5. The answer to question 4 also answers this question.

6. The board cannot relieve the superintendent of any duty expressly conferred by the terms of the statutes. Any by-law having such effect will be inconsistent with the statutes and void.

7. An accounting officer is a subordinate within the meaning of section 1. The superintendent ranks all other officers employed by the board and is expressly given the control and management of the hospital, subject, of course, to the supervision of the board, as already suggested. In conferring upon him power of removal and suspension, section 12 contemplates two classes of persons: (1) attendants, servants and employes, whom he may appoint and remove at pleasure; and (2) subordinate officers whom he may suspend at pleasure. It is only in the last named case that the board enjoys the right of review.

8. The law requires the accounting officer to report to the board, "as shall be provided for in the by-laws." It is therefore competent for the board to provide that such report shall first pass through the hands of the superintendent. Indeed, such a course would seem the more appropriate one, as it would serve as a sort of safeguard against a false or improper report, and tend to afford the board a more reliable accounting. The eighth question is, therefore, answered in the negative.

9. I find nothing in the copy of the by-laws submitted which militates against the provisions of section 12.

10. Paragraph 1 of the tenth by-law does not seek to interfere with the official relationship between the superintendent and steward, as prescribed by the statute. In holding his office "during the pleasure of the board of trustees," he is yet subject to temporary suspension by the superintendent. There is no good reason why he may not be the purchasing agent under the direction of the superintendent. This is clearly designed to aid the last named officer in the discharge of his general duties.

11. The bond required of the steward, pursuant to the second paragraph of the last named by-law, is a wise provision and authorized by the general powers conferred upon the board. It serves as an additional protection to the state, and possibly inures to the benefit of the superintendent. It cannot, however, be deemed to relieve the superintendent of any responsibility imposed by law upon him.

12. Section 14 does not purport to do more than to require the accounting officer and treasurer to do certain things as to their reports and system of accounting. In all other respects they are to be governed by the by-laws, both as to auditing accounts and the payment of accounts; the view of the superintendent is to control, save when the statute has otherwise expressly provided.

13. Purchases by the accounting officer are presumed always to be made under the direction of the superintendent.

14. The "statutes and by-laws" contemplate that the superintendent shall, at all times, be guided by their various provisions. An unlawful act on his part will never be presumed to be done under the direction or with the sanction of the board. Indeed, it is the duty of the superintendent to be governed by the express provisions of the statutes or by-laws prescribed for his guidance. If he disregards such authority he does so at his peril. Where general powers are conferred upon him, he will, of course, exercise his best judgment. In view of what has already been said and as thereby qualified, your last question is answered in the negative. The superintendent is primarily responsible to the board for the proper management of his institution. All other officers and agents of the institution must yield to his directions.

Nov. 29, 1895.

H. W. CHILDS, Attorney General.



## INCOMPATIBILITY.

**COUNTY COMMISSIONER—APPRaiser OF PUBLIC LANDS—A county commissioner is ineligible to the appointment of appraiser of public lands.**

ATTORNEY GENERAL'S OFFICE.

C. E. Bullard, Esq., County Attorney,

Dear Sir: A county commissioner is clearly ineligible to the appointment of appraiser of public lands. The statute to which you call attention provides that no county commissioner shall be appointed or elected by the board of county commissioners of which he is a member, to any office or position of trust to which such commissioners are authorized by law to appoint or elect. The statute authorizes the board to appoint two of the members of the board of appraisers of public lands, and therefore the case presented falls squarely within the purview of General Statutes 1878, chapter 8, section 110.

H. W. CHILDS, Attorney General.

July 13, 1895.

80

## INTOXICATING LIQUORS.

**LOCAL OPTION—MANUFACTURERS—General Laws 1895, chapter 259, is designed to confer upon a village or township authority to vote against the issuance of licenses for the sale of intoxicating liquors and to thereafter render it unlawful to continue the sale of the same therein until otherwise determined by subsequent vote. The proviso relative to manufacturers has no other or further effect than to give them the right to sell for consumption elsewhere than in the village or township.**

ATTORNEY GENERAL'S OFFICE.

Henry A. Morgan, Esq., County Attorney,

Dear Sir: General Laws 1895, chapter 259, is designed to confer upon a village or township authority to vote against the issuance of licenses for the sale of intoxicating liquors, and to thereafter render it unlawful to continue the sale of the same therein until otherwise determined by a subsequent vote.

The proviso relative to manufacturers has no other or further effect than to give them the right to sell for consumption elsewhere than in the village or township. The act grew out of the decision rendered by the federal supreme court in the *Lisey* case, wherein it was held that so long as liquors remained in the hands of the agent of the importer and in the original package in which they were imported, they had not as yet lost the character of interstate commerce and were not subject to the police regulations of the state. Following that decision, congress passed an act waiving the effect of the interstate clause of the federal constitution so far as intoxicating liquors are concerned, thereby leaving it to state legislatures to legislate with reference to such commodities as state policy might be deemed to require; hence the enactment of chapter 259. That chapter has no application whatever to cities, being restricted by its terms to villages and townships. So far as cities are concerned, the law leaves them where they were before the passage of the act of 1895.

It is a very grave question at best, whether, in view of the present state of our legislation, and in the absence of ample powers conferred upon a city by its charter, a wholesaler can be disturbed in a given city, either as to the manufacture or the sale (by wholesale) of his goods therein.

Section 2024, to which you refer, was enacted with a view to authorizing the issuance of licenses for a period of one year from the date of their issuance, whenever that date might occur. Prior to the enactment of that amendment, this office held for several years that the effect of the proviso contained in the law of 1887 as amended, had the effect of terminating every license

at the expiration of the twenty days following the annual election. The only exceptions to that rule as held by my predecessor, in 1887, were cities whose charters provided for biennial elections, and county commissioners. This office has uniformly held that licensees are required to pay the minimum fee prescribed, viz., \$500, whether the license is to run for a whole year or a fraction thereof.

The proviso contained in section 2024 authorizes refundment in all cases where a city, village or borough shall have determined at an election against the sale of intoxicating liquors. The effect of such vote is to terminate a license at once, as soon as the vote is declared by the election officers. The construction you appear to have reached is, therefore, in accord with the one obtaining in this department. It therefore follows that no formal action is necessary on the part of the city council to revoke pre-existing licenses, and all sales which have been made subsequent to such election are illegal.

H. W. CHILDS, Attorney General.

April 21, 1896.

81

**LIQUOR LICENSES—Authority of city to vote "no license." Certain provisions of the charter of the city of Albert Lea not in conflict with General Statutes 1894, section 2024.**

Clement J. Edwards, Esq., City Attorney.

ATTORNEY GENERAL'S OFFICE.

Dear Sir: In your communication of the 23d inst. you call attention to certain provisions of the charter of your city, as well as General Statutes 1894, section 2024, and inquire, in effect, whether the legal voters of your city may, at an annual election, determine whether licenses for the sale of intoxicating liquors shall or shall not be granted therein, and in the event that a vote against license carries at such an election, whether it will operate to revoke outstanding unexpired licenses.

The amendment of the charter of the city of Albert Lea in 1889 was not, in my judgment, intended to disturb the general policy of the legislation of this state upon the subject of the sale of intoxicating liquors, and should be read as in consonance therewith. Among other powers conferred upon the council of that city, is the regulation and licensing of saloons, "and all persons vending, dealing in or disposing of spirituous, vinous, malt or fermented liquors, and to provide and enforce such restrictions and prohibitions therefor as to the council may seem proper."

It was further provided that all licenses for dealing in such liquors should terminate on the first day of July each year, "and shall be at least \$500 and as much higher as the city council shall direct." The city council was given the exclusive right to issue licenses to applicants.

It is obvious that none of the powers thus conferred upon the council are in conflict with any of the provisions of the legislation of 1887 upon the subject of intoxicating liquors. Moreover, it is clearly apparent that whoever framed the language employed in the charter of the said city aimed to draw it in harmony with that legislation. The only respect in which there is anything conflicting between the charter and the general law is in the provision providing for the termination of licenses. In the general law, as enacted in 1887, licenses were made to expire at a period not later than twenty days after the annual election "in such village or city next ensuing after the date of such license," whereas the charter provision is to the effect that they shall expire on the first day of July. The minimum fee prescribed in the general law is also found in the charter. The fact that authority is conferred upon the council to exact a higher fee than \$500 is not at all inconsistent with the provisions of the general law, as the same power is conferred in the latter. In extending to the city council the exclusive authority to issue licenses, the legislature merely intended to grant authority to issue licenses only when the electors of the city have not determined against the issuance thereof at an annual election.

I have carefully examined the decisions to which you call attention, and others, and am unable to find anything therein expressed by the court at all inconsistent with the views above expressed.

It is my view of the law, as applied to the city of Albert Lea, that all licenses for the sale of intoxicating liquors became at once inoperative upon the official announcement of the result of the said vote.

H. W. CHILDS, Attorney General.

April 27, 1896.

82

**NO LICENSE**—Where a municipality has voted no license, the sale of intoxicating liquors therein is in clear violation of law.

ATTORNEY GENERAL'S OFFICE.

Mr. A. C. Chittenden, President Common Council,

Dear Sir: Where a municipality has voted no license, the dealing in intoxicating liquors therein, subsequent to such action, is a clear violation of law, for which the guilty parties may be punished. Places where such liquors are retailed are not entitled to recognition as saloons and have no rights as such under the laws of this state. General Laws 1887, chapter 8, contemplates only bona fide sales of liquors by pharmacists and druggists upon the prescriptions of reputable and duly licensed physicians in good faith for medicinal purposes. So far as the guilt of an individual is concerned, it is a matter of no importance whatever, whether he pretends to maintain a saloon or drug store, or otherwise. If he willfully sells or disposes of intoxicating liquors in violation of law, he is guilty, whatever character he may assume at the time of such sale.

H. W. CHILDS, Attorney General.

April 23, 1896.

83

**REFUNDMENT**—The village council has no authority to refund any portion of a license fee on account of the decease of the licensee.

ATTORNEY GENERAL'S OFFICE.

W. N. Davidson, Esq., Corporation Attorney,

Dear Sir: Replying to yours of the 6th inst., I doubt the authority of the village council to refund any portion of the fee paid by the deceased for the license for the sale of intoxicating liquors. When the license was granted, the money paid therefor became the absolute property of the corporation. I fail to perceive on what legal grounds any portion of it can now be refunded. In my view of the law, the council has no more right to refund any portion thereof than it has to make a donation of an equivalent sum to the estate of the licensee or to any other person. It may be that the administrator of the estate might continue the business for the remainder of the licensed period. At least, such has been done in one or two instances under similar circumstances. This will, of course, require the execution of a new bond. Be this as it may, I have no doubt as to the other proposition.

H. W. CHILDS, Attorney General.

June 8, 1896.

84

**GOVERNMENT LICENSE**—A government license for the sale of intoxicating liquors does not authorize one to sell liquors at retail in this state, nor to sell liquors in municipalities in which the sale thereof has been prohibited.

ATTORNEY GENERAL'S OFFICE.

Rev. G. A. Briggs,

Dear Sir: The government imposes a special tax for the sale of intoxicating liquors. It is not, however, sufficient to authorize one to sell liquors at retail in this state, nor will it authorize the sale of liquors in municipalities in which the sale thereof has been prohibited. The purpose of General Laws 1895,



chapter 259, was to prevent the sale of liquors by wholesale or otherwise in such municipalities. A decision was reached some years since in the United States supreme court to the effect that liquors imported into a state were not subject to the police regulations of the state, so long as the same remained in unbroken packages and in the custody of the agents of the importers. Subsequent to that decision, congress passed a law conferring upon states the right to provide by statutory enactment for the regulation of that class of property, as soon as it came within their respective confines. Chapter 259 was enacted to reach such cases, so that it is no longer lawful to sell, barter or give away intoxicating liquors in any township wherein such sale has been prohibited by the vote of the electors thereof.

Dec. 26, 1895.

H. W. CHILDS, Attorney General.

85

**REINSTATING FORFEITED LICENSE**—A licensee whose liquor license has been forfeited for violation of any law or ordinance cannot have same reinstated, nor be granted a new license.

ATTORNEY GENERAL'S OFFICE.

Mr. F. O. Beardsley, Village Recorder,

Dear Sir: Your favor of the 8th inst. is at hand. There is no provision of law for the reinstating of a liquor license that has been forfeited for violation of any law or ordinance. Neither is there any authority or granting a new license to the licensee. In fact, the statutes prohibit granting such party a license for a period of five years in certain instances, and in any instance no license can be granted for a period of one year. There is no authority for the refundment of license money in case a license is revoked. The only instance in which license money can be refunded is in case "no license" is voted before the expiration of the term for which the license is granted. In such case a pro rata refundment may be made.

Oct. 12, 1895.

H. W. CHILDS, Attorney General.

86

**LOCAL OPTION**—Where a village or municipal township votes "no license," it is unlawful to sell intoxicating liquors therein, either at wholesale or retail.

ATTORNEY GENERAL'S OFFICE.

J. W. Quinn, Esq., County Attorney,

Dear Sir: I call your attention to Senate File No. 107, an act that has recently passed the legislature and received the governor's approval. The act in question provides that whenever the people of any village or municipal township shall have voted against the issuance of license for the sale of intoxicating liquors therein, it shall be unlawful for any person or corporation to sell, barter or give away the same at retail or wholesale in any quantity whatever; provided, that nothing therein contained shall affect the provisions of chapter 8, General Laws 1887. Whoever violates the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than \$50 nor more than \$100, together with costs of prosecution, and by imprisonment in the county jail for not less than thirty days nor more than ninety days.

It is also provided that nothing therein contained shall be construed to prevent or forbid any manufacturer of intoxicating liquors in any village or township from selling his product to be consumed outside of said village or township.

April 8, 1895.

H. W. CHILDS, Attorney General.



**REVOCATION OF LICENSE—Certain questions considered and answered.**

ATTORNEY GENERAL'S OFFICE.

Hon. A. F. Nordin, County Attorney.

Dear Sir: It appears by your statement of facts that a licensee for the sale of intoxicating liquors had in his employ in the village of Willmar a certain bartender, who, while the licensee was absent from the state on account of ill-health, violated the law by the sale of intoxicating liquors to a minor, who at the time was a student. The bartender was arrested for the offense of selling liquor to the minor, pleaded guilty therefor, and paid the fine imposed upon him.

You ask the following questions:

1. Do the foregoing facts justify a revocation of the license?
2. Can the bartender now be prosecuted for selling to the student, the act relied on as the gist of the offense being the same for which the offender has already been tried?

The first question is answered in the negative. (State vs. Mahoney, 23 Minn. 181; State vs. Mueller, 38 Minn. 497.)

The second question should also be answered in the negative. (State vs. Brown, 45 Minn. 145.) The statute does not contemplate a revocation of a license unless the facts disclose willfulness on the part of the licensee. A single act of unlawful selling, under the facts above stated, does not impute such culpability to the licensee as would justify a revocation of the license. If, however, it could be shown that the bartender was acting in pursuance of the general instructions of his employer, a different case would be presented.

H. W. CHILDS, Attorney General.

April 1, 1896.

88

**INSURANCE.**

**AUTOMATIC SPRINKLERS—Where risks are equipped with automatic sprinklers the insurer may require insurance to any extent, and that the assured may be an insurer of his property to any extent agreed upon between him and the insurer.**

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner.

Sir: Calling attention to General Laws 1895, chapter 175, section 25, you inquire whether the clause relative to automatic sprinklers authorizes the use of the co-insurance clause upon the policies covering risks equipped with automatic sprinklers.

The section above cited provides in part as follows:

"Any provision, contract or stipulation contained in any contract or policy of insurance issued or made by any fire insurance company, association, syndicate or corporation, insuring any property within this state, except risks equipped by the automatic sprinklers, whereby it is provided or stipulated that the assured shall maintain insurance on any property covered by the policy to the extent of eighty per cent on the value thereof, or to any extent whatever, and any provision or stipulation in any such contract or policy of insurance, that the insured shall be an insurer of the property insured to any extent, and any provision or stipulation in any such contract or policy to the effect that the insured shall bear any portion of the loss on the property insured, are hereby declared to be null and void," etc.

It is difficult to perceive any valid reason for the incorporation into the foregoing provisions of the automatic sprinkler clause. The effect of that clause is to subject the owner of property who has been to the expense of equipping the same with such apparatus, to the penalty of such exactions with reference to maintaining a certain percentage of insurance, etc., as the in-

suror is pleased to impose. In other words, the assured incurs the penalty of such exactions by adopting the improvements and safeguards in question.

I am almost disposed to adopt the view that the clause is wholly nugatory, as being directly at variance with the manifest purpose of the legislature. It has, however, been suggested that the clause was adopted to meet cases of large risks which, with rare exceptions, are the only ones thus equipped. Inasmuch as the assured can procure insurance at more favorable terms when subjected to such condition than he otherwise could, the legislature was disposed to make an exception in his case. It being a rule of this department that an administrative officer ought not to disregard the express provisions of statute, unless the same be palpably invalid, I am constrained to advise you that the clause in question modifies all of the provisions relative to risks contemplated by the language above quoted. In other words, where risks are equipped with automatic sprinklers the insurer may require insurance to any extent, and that the assured may be an insurer of his property to any extent agreed upon between him and the insurer.

In view of the questionable validity of the clause in question, it ought to be restricted within the narrowest limits. I therefore advise you that it has no application whatever to any of the provisions contained in the sentences of the section following the sentence from which the above quotation is made.

H. W. CHILDS, Attorney General.

May 13, 1896.

89

**RIDER—CO-INSURANCE—A certain form of rider considered and deemed in violation of the statute against co-insurance.**

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner,

Sir: You state that your permission is sought by certain insurance companies for the use of the following proposed rider:

"Minnesota Standard; Percentage Value Clause. Permission is hereby granted for other insurance to an amount, including this policy, aggregating not to exceed eighty per cent of the actual cash value of the property; provided, however, that in case of any loss or damage to the property covered by this policy amounting to less than eighty per cent of its actual cash value at the time of the fire, this company shall be liable for not to exceed such proportion of such loss or damage as the amount insured by this policy bears to such eighty per cent of such actual cash value of said property.

"When this clause is attached to and forms part of a policy covering two or more specific items, it shall apply separately to each such specific item of such policy.

"Attached to and forming part of policy No....of....insurance company ...., Agent."

You request my views as to the propriety of granting such request.

It is urged in support of the use of such rider that it is not a co-insurance clause. This contention is rested upon the view that the rider relates only to a loss less than eighty per cent of the value, and therefore does not apply to "total loss on buildings"; and that it does not require the assured to maintain any amount of insurance upon the property insured. What else is said in the argument with which I am presented is essentially a restatement of the foregoing propositions in other forms, or the statement of reasons in their support.

The rider permits insurance in the aggregate of eighty per cent of the cash value of the property, but in case of loss or damage to the property insured to any extent not exceeding the said percentage, the company using the rider is to be liable for such amount as the amount of its own risk bears to the said eighty per cent. Stated by example its liability is the more readily seen.

The property of A has an actual cash value of \$1,000, and may, therefore, under the rider, be insured in the aggregate to the extent of \$800. The company in question issues a policy of \$200 and another company of \$400 upon the said property. A loss subsequently arises to the extent of \$100, which,

under the rule prescribed by the rider, will be distributed as follows: The first company will pay two-eighths of \$400, or \$100, and the other company four-eighths of \$400, or \$200. By this arrangement the insured will be able to recover from the companies only \$300 in place of \$400.

This, in my judgment, is in plain violation of the statute against co-insurance. In fact, I am unable to perceive how a case more clearly offensive in such respect can arise. The assured is obviously required to carry insurance to the amount of \$100 upon the property destroyed. I see no force to the contention that the rider relates to insurance less than eighty per cent and not to a total loss. When companies impose an eighty per cent restriction, as is suggested by the rider in question, that maximum must be deemed within the meaning of the prohibition of the statute upon the subject of co-insurance, to constitute the insurable value of the property.

For the above reasons the use of the said rider should be denied.

H. W. CHILDS, Attorney General.

Dec. 12, 1895.

90

**CONSTRUCTION OF STATUTE—Certain provisions of General Laws 1895, chapter 175, construed.**

**ATTORNEY GENERAL'S OFFICE.**

Hon. C. H. Smith, Insurance Commissioner,

Sir: In your communication of the 19th ult. the following questions are presented for my consideration:

First, calling attention to General Laws 1895, chapter 175, section 90, it is asked by the Liverpool & London & Globe Insurance Company of England:

(a) Under the above section, is it necessary for us to add anything to such sign to further designate the name of the country wherein the company is formed?

(b) Is it necessary for an agent to display any sign designating his place of business or the companies he may represent?

(d) Is it necessary for us to give any further designation of the company's location other than is given in the sample of our Iowa policy?

(e) Is it obligatory on us to print on all cards, placards, pamphlets, and all advertisements issued or circulated, "incorporated as a stock company," and the words "England" or "Great Britain" to designate the location of the company?

(f) Under section 91, chapter 175, General Laws 1895, where a local agent of one company, duly commissioned by you, controls a larger line than he can write in the companies that he represents directly as agent, and is desirous of having some of the insurance written for his client by the duly authorized agent of some other company, and he goes to the latter's agents and requests the issuance of a policy, is it necessary for him to secure a broker's license?

(g) Is the following form of rider permissible?

"Permission is hereby granted for the building described in this policy to be vacant, or unoccupied for the period of...days from this...day of...., 189..

"And in consideration of the increased hazard, by reason of such vacancy, it is hereby understood and agreed, that during such vacancy one-third of the amount of the insurance under this policy shall be and remain suspended and of no effect; and in case of loss this company shall not be liable to pay or make good to the assured exceeding two-thirds of the amount insured hereunder, nor exceeding two-thirds of the amount of loss or damage.

"In case of other insurance on property covered by this policy that has been, or shall be, rendered void or voidable by the vacancy in case of loss, such other insurance shall be held as valid and subsisting."

It is a sufficient compliance with the law to name the state or country under whose authority the company is organized, as New York, England, etc., as the case may be.



The statute seems to contemplate the use of a sign by an agent; the essential purpose is to apprise the public as to the companies which the agent represents. I think, therefore, that the agent should display a sign indicative of his business.

In view of the peculiar organization of the above named company, it will be proper for it to print upon its circulars the words "empowered as a stock company." Furthermore, it should be made to appear thereon that it is organized under the laws of England. The words "England" or "Great Britain" would be sufficient.

The statute requires that cards and other printed matter employed for the purpose of advertising the business of a company shall state whether it is chartered or incorporated, a mutual or joint stock company, and the name of the state or country under whose authority it is organized.

The agent of one company procuring insurance for another to cover a given risk is to that extent a broker and should procure a broker's license before assuming to procure such other insurance.

The form of the proposed rider may be allowed if there is stricken therefrom all that follows the words "effect." The retention of what follows that word would be in violation of the provision against the use of a co-insurance clause.

Dec. 12, 1895.

H. W. CHILDS, Attorney General.

91

#### **RIDER—PRO RATA CLAUSE—Certain form of rider considered.**

Hon. C. H. Smith, Insurance Commissioner,

ATTORNEY GENERAL'S OFFICE.

Sir: You call my attention to the following forms of riders or clauses proposed to be used by certain insurance companies and request my views as to whether they are properly permissible. They are as follows:

"Permission is hereby granted for other insurance to an amount, including this policy, aggregating not to exceed eighty per cent of the actual cash value of the property; provided, however, that if at the time of the fire the total insurance on the property shall exceed said eighty per cent, this policy shall thereby become void only in the proportion of such excess to such total insurance.

"When this clause is attached to, and made a part of a policy covering two or more items, this clause shall be construed as applying separately to each item of the policy."

"Should the property hereby insured be or become separated by a space, or spaces, of fifty feet or more, it is hereby agreed that this policy shall attach in or on each division separated by such space or spaces in such proportion as the value in or on each division bears to the aggregate value of the subjects insured."

1. As to the first clause, the question is virtually disposed of by what was said in the opinion of this office, under date of Nov. 5, 1895, wherein it was held that the use of such a clause is permissible. The reasons which conduced to that decision obtain with equal force to the use of the clause in question, and you are advised accordingly.

2. The employment of the second form, or the "pro rata clause," should not be authorized. It offends against the very purpose and spirit of the statute prohibiting co-insurance, inasmuch as the statute clearly seeks to protect the assured against an exaction on the part of the insurer, whereby the former is made to pay for what he does not actually receive; or, in other words, is designed to secure to him the right of being compensated for the loss actually sustained, with no other limitation than the amount of the policy. It would, in my judgment, be in violation of the statute to employ a provision whose observance will operate as a restriction in such respect upon him. That the use of the clause will be attended with such restriction is at once obvious when regard is had to its practical operation. It implies that the owner of lumber piled in detached parcels can recover in case of a fire



occurring in one of such parcels or piles, only such amount as the value of such parcel or pile bears to the total value in yard or on dock, as the case may be. It must, therefore, follow with the utmost certainty, that he will receive a less amount than his loss. As above suggested, he is entitled to a contract insuring him against the whole of such a loss.

H. W. CHILDS, Attorney General.

April 28, 1896.

92

**RETALIATORY LAW—Moneys collected under certain retaliatory provision in Wisconsin law should be paid over to treasurers of the municipalities of the state entitled thereto, for the support of fire departments.**

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner,

Sir: I beg to acknowledge receipt of your communication of some time since, in which you call attention to the fact that you are in possession of certain moneys paid into your hands under General Statutes 1894, section 3188, by insurance companies organized under the laws of the State of Wisconsin, and doing business in this state. You say: "This money was collected under a retaliatory provision in the Wisconsin law which taxes insurance companies two per cent upon the premiums received from the various towns, for the support of fire departments."

You now request my views as to whom the said moneys shall be paid by you.

It is the purpose of the above named section to exact from nonresident insurance companies the same requirements which are exacted from companies of this state doing business in their respective states. By the laws of Wisconsin, insurance companies are required to pay a certain percentage upon the business done in the several municipalities in the state to such municipalities for the support of fire departments. This exaction is enforced by Wisconsin authorities against Minnesota companies doing business in that state. In obedience to our retaliatory law, Wisconsin companies should therefore pay to the municipalities of this state in which they are doing business an equivalent tax, and, as I understand your communication, they have complied with the requirement.

Sections 3126 to 3220 have no bearing upon the question, as they have reference merely to the disposition of the tax paid pursuant to section 3192.

While you have assumed to act as the mutual agent of insurance companies and municipalities in the collection of such moneys, it is very questionable whether you are required by virtue of your office to assume such a duty. Be that as it may, the moneys thus collected belong to, and should be distributed among, the several municipalities of this state in which fire departments have been maintained during the time of the collection thereof, for the use of such fire departments.

I would therefore suggest that you pay such moneys over to the treasurers of the municipalities of the state entitled thereto, for the use and benefit of such departments.

H. W. CHILDS, Attorney General.

April 23, 1896.

93

**RIDERS—Certain proposed riders considered.**

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner,

Sir: You submit the following proposed riders, numbered 1 to 4, respectively, and inquire whether the use of the first three upon the standard form of policy is permissible, and, if not, whether the fourth may be used:

1. "St. Paul, Minn. Form No. 1, for Insurance on Rents. When this form is used the rate shall be same as building rate. \$. . . on rents of the. . . story. . . building, with. . . roof, situate. . ."

"It is understood and agreed that in case the above named building, or any part thereof, shall be rendered untenable by fire, this company shall be liable to the assured for the actual loss of rent ensuing therefrom, not exceeding the sum insured. The assured agreeing to rebuild or repair said premises in as short a time as the nature of the case will admit. Loss to be computed from the date of the occurrence of said fire, and cease on said building being rendered tenantable; and in case the assured shall elect not to rebuild or repair the premises, then the loss of rent shall be determined by the time which would have been required for such purpose. Other concurrent insurance permitted.

"To attach to and form a part of Policy No... Insurance Company of...  
 ".....Agent."

2. "St. Paul Underwriters' Union. Form No. 2, for Insurance on Rents. When this form is used the rate may be twenty per cent less than the building rate. \$...on rents of the...story...building with...roof, situate....

"It is understood and agreed that in case the above named building, or any part thereof, shall be rendered untenable by fire, this company shall be liable to the assured for the actual loss of rent ensuing therefrom, not exceeding the sum insured. The assured agreeing to rebuild or repair said premises in as short a time as the nature of the case will admit. Loss to be computed from the date of the occurrence of said fire, and cease on said building being rendered tenantable; and in case the assured shall elect not to rebuild or repair the premises, then the loss of rent shall be determined by the time which would have been required for such purpose. Other concurrent insurance permitted.

"The assured stipulates and agrees to carry insurance on said rents in an amount equal to not less than seventy-five per cent of the actual annual rents of said premises, and it is understood and agreed that if, at the time of fire, the aggregate amount of insurance upon said rents shall be less than seventy-five per cent of said total rents, the insured shall be held to be an insurer in the amount of such deficiency, and in that capacity shall bear a proportionate share of the loss.

"To attach to and form a part of Policy No... Insurance Company of...  
 ".....Agent."

3. "St. Paul Underwriters' Union. Form No. 3, for Insurance on Rents. When this form is used the rate may be twenty-five per cent less than the building rate. \$...on rents of the...story...building with...roof, situate....

"It is understood and agreed that in case the above named building, or any part thereof, shall be rendered untenable by fire, this company shall be liable to the assured for the actual loss of rent ensuing therefrom, not exceeding the sum insured. The assured agreeing to rebuild or repair said premises in as short a time as the nature of the case will admit. Loss to be computed from the date of the occurrence of said fire, and cease on said building being rendered tenantable; and in case the assured shall elect not to rebuild or repair the premises, then the loss of rent shall be determined by the time which would have been required for such purpose. Other concurrent insurance permitted.

"It is understood and agreed that in case of loss, this company shall only be liable in the proportion that the sum insured under this policy bears to the actual annual rental of the premises at the time of the fire.

"To attach to and form a part of Policy No... Insurance Company of...  
 ".....Agent."

4. "It is understood and agreed that the building herein described is leased for a term longer than one year from date hereof at a rental of \$...per annum, and the assured hereby agrees to maintain insurance on said rents to the amount of \$..., and in case of failure so to do this policy shall be void and of no effect."

It is urged in support of the first three forms that rents are not property within the meaning of the prohibition contained in section 25 of the insurance law, and, furthermore, that the evil aimed at in the prohibition does not inhere in the insurance of rents.

The first contention is clearly untenable. By section 3 of that law a contract of insurance is defined to be "an agreement by which one party for a

consideration promises to pay to the assured upon the destruction or injury of something in which the other party has an interest," and it is made unlawful "for any company to make any contract of insurance upon or concerning any property or interest \* \* \* unless and except as authorized under the provisions of this act." A rent is universally held to be property. It is "a right of which the arrears, periodically accruing, are merely the fruits." I see no reason, therefore, why a contract for the insurance of rents does not fall fairly within the scope of the prohibition.

The second and fourth forms are repugnant to the statute and cannot be allowed. I am unable to perceive in what respect the first form is objectionable.

1. A contract that the assured shall maintain insurance to any extent.

2. A contract that he shall be an insurer to any extent.

3. A contract that he shall bear any portion of the loss.

The first form provides that the company "shall be liable to the assured for the actual loss of rent ensuing therefrom, not exceeding the sum insured." This violates neither of the said prohibitions.

The third form provides that the company, in case of loss, "shall only be liable in the proportion that the sum insured under this policy bears to the actual rental of the premises at the time of the fire." The effect of this provision is to constitute the assured, to a certain extent, a co-insurer. The company obligates itself to pay not the actual loss of rents, but only a proportionate share thereof.

You are therefore advised that the first form is permissible, but not the others.

H. W. CHILDS, Attorney General.

Nov. 15, 1895.

94

**UNAUTHORIZED FOREIGN COMPANIES—Certain questions relating to the subject of procuring insurance from companies not authorized to do business in this state, considered and answered.**

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner,

Sir: Calling attention to General Laws 1895, chapter 175, relating to the subject of procuring insurance from companies not authorized to do business in this state, you submit, in effect, the following questions:

1. Can several persons desiring to procure such insurance jointly appoint a person or corporation their agent therefor, to which agent it will be lawful for you to issue a license in the name of such agent?

2. If the first question is answered in the affirmative, can such license issue upon payment of a single fee of ten dollars?

3. Can an individual procure a license for obtaining insurance in unauthorized companies without paying any fee therefor?

Section 15 of the said chapter provides that a fee of ten dollars shall be paid "for each license to procure fire insurance in unauthorized foreign companies."

Section 82 of the same act provides that "any person who desires the right to obtain such insurance (in foreign companies not authorized to do business in this state), either on his own property or the property of a firm or corporation in which he is interested, shall apply to the insurance commissioner for a license and file with him a bond as hereinafter provided; thereupon, the commissioner shall issue to such applicant a license good for one year, authorizing him to procure for himself or his firm or corporation such outside insurance."

It is further provided, in the same section, that the applicant shall give a bond which "shall be in such reasonable sum as the insurance commissioner shall determine," etc., \* \* \* conditioned, among other things, that the applicant shall "pay forthwith, on the expiration of such license, to the said insurance commissioner of the State of Minnesota, a tax of two per centum upon premiums paid by such license, or his said firm or corporation."



Section 96 of the same act provides for a tax of two per cent on all premiums received by insurance companies, whether domestic or foreign, doing business in this state.

A careful reading of the act in question convinces me that the law contemplates the issuance of a license to an individual, association or corporation desiring to procure insurance in unauthorized companies. An individual or a corporation, if acting as the agent of two or more individuals or companies in placing insurance, cannot be the recipient of a blanket license issued in the name of such agent, authorizing the procurement of such insurance for any one or more of the principals so represented. The license must be issued to the individual, association or corporation desiring to procure the insurance.

The law prescribes a license fee of ten dollars as a prerequisite to the issuance of a license for a right to obtain such insurance. It has been suggested that this provision of the statute should not be observed, for the reason that the terms of section 82 of the act were completely modified in character during its passage through the legislature, and that it is a case of legislative oversight in preserving it in section 15. I am unable to subscribe to this view. As already seen, section 82 provides for the obtaining of insurance in unauthorized companies, and section 15 in express terms exacts a fee of ten dollars for the issuance of a license for procuring such insurance. It would, in my judgment, be an unwarranted construction of the terms of the act to hold that the provisions of section 15 in such regard are inoperative. After a license has once issued, the license may be renewed by the payment of a fee of one dollar, as provided in section 15.

It has been further suggested that a license fee is not contemplated by section 82, for the reason that section 15 implies the payment of such fee for the procurement of insurance, and that section 82 requires its payment as a right to obtain insurance. I see no force in this view. In fact, section 82 uses the terms "obtain" and "procure" synonymously, as it is there expressly provided that the commissioner "shall issue to said applicant a license good for one year, authorizing him to *procure* for himself or his firm or corporation such outside insurance." Nor do I see any force in the suggestion that because section 82 provides for the payment of a tax of two per cent upon premiums, a license fee is not therefore contemplated. Such view loses sight of the fact that the law imposes a tax of two per cent upon all companies doing business in this state, whether foreign or domestic, and it was clearly the intention of the legislature to place companies not authorized to do business in this state upon the same footing, and to exact similar taxation upon premiums issued to such unauthorized companies.

You are therefore advised that each of the several questions raised by you should be answered in the negative.

Oct. 28, 1895.

H. W. CHILDS, Attorney General.

95

#### **SALVAGE CORPS—Claims of contesting salvage corps considered.**

Hon. C. H. Smith, Insurance Commissioner,

ATTORNEY GENERAL'S OFFICE.

Sir: Under the retaliatory feature of the insurance law of this state it is provided that: "Any insurance company of any other state or nation doing business in any city of this state, wherein there is a duly incorporated board of underwriters that has organized a salvage corps as provided by statute, and such insurance company or its agents are not subject to taxation for the equipment and maintenance of said salvage corps under this section, then such insurance company or companies shall be subject to a tax equal to two per cent on the gross amount of the premiums received by said company in such city, which sum shall be payable to the treasurer of said board of underwriters, and shall be by said board of underwriters used solely for the equipment and maintenance of said salvage corps, and such tax shall be in addition to all taxes, penalties, licenses and fees provided in this act to be paid to the State of Minnesota by such insurance companies or their agents."



In April, 1895, the Minneapolis Board of Fire Underwriters was organized in the city of Minneapolis for the purpose of organizing and equipping a salvage corps and fire patrol in that city. On or about the first day of September following, the Merchants Board of Underwriters was incorporated, to carry on substantially the same business. It does not appear that either of the said companies is composed of underwriters in the strict sense of the term; but it seems to be admitted that the first named company is made up of persons actively engaged as agents in the business of fire insurance. The first named company have heretofore requested the various fire insurance companies doing business in Minneapolis to advance one-half of the tax for 1895 in order to place the salvage corps immediately upon a working basis, and have requested you to countersign the receipts as evidence that the companies would not be compelled to pay the tax over again. The companies upon whom such request was made have, as I understand the fact, assented to that manner of payment, provided the receipts given by the salvage company are countersigned as aforesaid.

The second named company objects to such official indorsement, and urge that the other company is not only not entitled to all of the moneys derived from such sources, but that it is not qualified to receive any portion thereof, for the reason that it is not a company organized by underwriters, as the statute directs.

The act approved April 13, 1895, confers upon boards of underwriters incorporated under the laws of this state power to make proper provision for the preservation of property from fires in cities of over five thousand inhabitants.

You inquire, in substance, which, if either, of the said companies is entitled to the said moneys, with a view to determining whether or not you shall indorse the receipts given by one or the other of the said companies.

I am clearly of the opinion that such indorsement by you is not required by law. The law implies that a nonresident company of another state doing business in this state shall be subject to the same exactions imposed by the other state upon a Minnesota company doing business in such other state. It is not made to appear that the insurance commissioner of any other state is required to perform the service now requested of you. While you may deem it not improper to comply with the request, you are not, as above suggested, required to do so.

If I am correct in this conclusion, the question is disposed of so far as your office is concerned, but counsel for the respective companies are solicitous that I express my views as to the comparative rights of such companies to the said moneys.

The law was, in my judgment, sufficiently complied with in the organization of the first named company. The purpose of the law is the organization of salvage corps by underwriters for the preservation of property. If underwriters recognize a company organized by their agents as a proper agency for the disbursement of such moneys, the law is sufficiently complied with. Furthermore, I am of the opinion that the law does not contemplate the existence of more than one company in a city. The companies are directed by the statute, which is about to go into effect, to pay the moneys to the board of underwriters. While the act approved April 13th speaks of boards of fire underwriters, it does not do so in the sense that more than one board may exist in a single city. The plural form is employed because the legislature was addressing its attention to all such organizations in the state. A careful reading of that measure fails to suggest to my mind any other construction.

The first named company should therefore be recognized as the only authorized salvage corps in the city.

H. W. CHILDS, Attorney General.

Oct. 1, 1895.

**FOREIGN INSURANCE COMPANY**—An insurance company authorized by the laws of another state to transact business therein may be admitted to do business in this state upon filing proper evidence, together with the sworn statement of their financial condition.

Hon. C. H. Smith, Insurance Commissioner, ATTORNEY GENERAL'S OFFICE.

Sir: Calling attention to the provisions of section 77 of the existing insurance law of this state, you inquire, in effect, whether a foreign insurance company legally transacting business in another state may be admitted to do business in this state without compliance with all of the requirements expressed in the second subdivision of said section which precedes the words, "and except that."

The section contemplates the admission of two classes of foreign companies. First, those not doing business elsewhere in this country; and, second, those legally transacting business in one or more states other than our own. As to the first class, all of such requirements are applicable and mandatory; as to the second class, they are inapplicable. The excepting clause is in its nature a proviso, and excepts the companies contemplated by it from any other requirement named in the second subdivision than those expressed by its own terms. It was evidently the view of the framers of the law that a company authorized by the laws of another state to transact business therein might safely be admitted to do business in this state, provided they filed evidence in your department of the fact of their transacting business in another state, together with a sworn statement of their financial condition showing the facts required by the proviso. A careful reading of the section in question convinces me that no other view is consonant with the intention of the legislature.

Jan. 9, 1896.

H. W. CHILDS, Attorney General.

**CONTINGENT SAFETY FUND**—Certain words considered and the use thereof deemed unlawful.

Hon. C. H. Smith, Insurance Commissioner, ATTORNEY GENERAL'S OFFICE.

Sir. At the instance of counsel for one of the insurance companies of this state, I have re-examined the question considered in my communication to you under date of the 27th ult., touching the right of the Mutual Fire Insurance Company of Minneapolis to advertise a contingent safety fund.

In my former communication you were advised that "the creation of said fund will be wholly gratuitous on the part of the persons who are to contribute to it, as it is not within the contemplation of any provision of the statutes of this state;" and I then emphasized the fact that "great caution should be exercised in providing against deception tending to mislead the public."

With a view to affording a proper safeguard, I then suggested that the company should advertise the facts pertaining to such fund as they actually existed, and approved the use of the following words upon their advertisements: "Contingent safety fund not required by law."

It has, however, been earnestly urged that the use of such words will not afford proper protection to the public against deception, that "inasmuch as the law does not authorize certain companies to create and maintain a contingent safety and reserve fund over which the insurance department has a right to, and does exercise, supervision and control, it is apparent that any other company which is permitted to advertise or hold itself out as having a contingent safety fund not bearing the least resemblance to it would be to permit them, under the sanction of the insurance department, to perpetrate

a palpable fraud upon the public, to the injury not only of the public, but to the injury of the companies which have under the law and in accordance with its provisions created and maintained a legal contingent safety and reserve fund." It is further urged that the public will have no method of ascertaining or determining whether the parties who signed the agreement then referred to are solvent and responsible.

I recognize the force of the foregoing contention, and am not satisfied with the advice given you in the former communication. It is true, as above suggested, that the public will assume, to a greater or less extent, that the fund thus advertised consists of actual available assets, whereas, in fact, the assets will consist only of notes signed by certain parties unknown to the public and to your department. While it might be assumed that the company in question will secure the notes only of responsible parties, it must be remembered that if this right is to be accorded to that company, it must be accorded to all other companies requesting it. In this connection we should not overlook the provisions of section 47 authorizing mutual marine insurance companies to provide funds in a manner strikingly similar to that proposed by the said company. As to that class of companies, however, they are prohibited from doing business until the amount of \$200,000 shall have been subscribed and a certificate signed by the president and a majority of the directors has been deposited with and approved by the insurance commissioner. These provisions are indicative of the precaution exercised by the legislature in guarding the public against deception or injury from worthless subscriptions. While they apply to companies only doing a marine business, they properly serve as a guide to the course which should be pursued by your department in determining the rights of another class of companies requesting to be allowed to provide a fund in a similar manner. Undoubtedly you should decline to assume the responsibility either of being the custodian of such notes and obligations, or of passing upon the solvency and responsibility of the makers thereof.

I am therefore of the opinion that the use of the words "contingent safety fund not required by law" will not be a sufficient safeguard against deception and imposition. As heretofore stated, the company should express the fact as it actually exists, by the use of terms so plain and explicit that the ordinary insurer would not be misled by them.

H. W. CHILDS, Attorney General.

Jan. 10, 1896.

98

**ACCIDENT INSURANCE**—Certain articles of incorporation examined and deemed not to indicate the doing of an insurance business.

ATTORNEY GENERAL'S OFFICE.

Hon. C. H. Smith, Insurance Commissioner,

Sir: Upon careful examination of the articles of incorporation, the form of contract and the other papers submitted by you in the matter of the Equitable Accident Adjustment Company, I am of the opinion that the business in which that company is engaged does not fall within the definition of insurance as prescribed in the insurance law of this state.

Briefly stated, a contract made by the company is to the effect that it will assist the contractee for the consideration named in effecting a settlement or prosecuting a civil action in the event of his receiving a personal injury by reason whereof a cause of action shall have arisen in his behalf. He is not to be indemnified against anything. The company does not obligate itself to pay him anything in case of accident, or guarantee that the defendant in an action which may be instituted will do so. It merely provides that during the period of twelve months it will, for such consideration, supply him with requisite assistance, professional or otherwise, looking to the recovery of his claim. This is, in my judgment, a contract for personal services, rather than a contract of insurance.

H. W. CHILDS, Attorney General.

Dec. 27, 1896.



**CONTRACT**—Certain form of agreement considered and deemed not in compliance with law.

Hon. C. H. Smith, Insurance Commissioner, ATTORNEY GENERAL'S OFFICE.

Sir: You submit a communication recently received from Mr. K. Knuetson, in which he calls attention to certain proposed articles of association and agreement looking to the organization of a mutual insurance company.

It is proposed by Mr. Knuetson to procure from property owners applications for insurance in the form of an agreement, which nowhere suggests the name of the company to be formed, nor is there any suggestion in the proposed agreement of the formation of a new company.

The law provides that no policy shall be issued by a purely mutual fire insurance company until not less than \$750,000 of insurance in not less than three hundred separate risks upon property located in Minnesota has been subscribed for and entered on its books. The law contemplates that applications to the above amount shall be made for insurance in the newly formed company.

I do not think that Mr. Knuetson's form of agreement will be a sufficient compliance with the law in this respect. It seems to me, too, that any other course will tend to lead to deception and misunderstanding among the persons who become parties to that agreement. While this is neither here nor there, I feel that you should insist upon a construction of the law which requires the applicants for insurance to state the name of the company in which the insurance is sought.

Dec. 26, 1895.

H. W. CHILDS, Attorney General.

**SECTIONS 25 and 53 of the Insurance Law construed and held not repugnant to each other.**

Hon. C. H. Smith, Insurance Commissioner, ATTORNEY GENERAL'S OFFICE.

Sir: In your communication of the 5th inst. you call attention to those provisions of sections 25 and 53 of the Insurance Code of this state, relating to the time within which suit is to be commenced, and request my views "as to whether a company is authorized to change the reading of the policy from two years to one year, or some other specified time."

The language of section 25 is: "No fire or fire and marine insurance company shall make any conditions or stipulations in its insurance contract concerning the court of jurisdiction wherein any suit thereon may be brought, nor shall limit the time within which such suit may be commenced to less than one year after the cause of action accrues."

The language of section 53, so far as material, is: "No suit or action against this company for the recovery of any claim by virtue of this policy shall be sustained in any court of law or equity in this state, unless commenced within two years from the time loss occurs."

There is no necessary repugnancy between the two provisions. The first is a prohibition upon the company to the effect that it shall not limit by contract the time within which action may be commenced by the assured to less than one year; while the second is a limitation of the time within which the right of action subsists. The company may require the action to be commenced within one year and a day, if so disposed. Although it is quite obvious that the author of the law overlooked the provision contained in the earlier section when framing the later one, the construction above given harmonizes the two, and should for that reason obtain.

Replying to your further question, you are advised that it will be proper for an insurance company to insert in its printed contracts, within brackets, words manifestly intended to be used instead of those which by clerical errors have crept into the enrolled bill.

Aug. 9, 1895.

H. W. CHILDS, Attorney General.



## LEGAL NEWSPAPER.

**OMISSION ON LEGAL HOLIDAY**—The status of a legal newspaper is not affected by an omission to issue the same on a legal holiday.

ATTORNEY GENERAL'S OFFICE.

L. S. Manwaring, Esq., County Attorney,

Dear Sir: You inquire whether the status of a newspaper, as defined by the statutes of this state, is affected by an omission to issue the same on a legal holiday.

Newspapers are classified in the statute as printed daily, tri-weekly, semi-weekly and weekly. It would, in my judgment, be a narrow and unwarranted construction of the statute to hold that it requires publication to be made upon such days in order to maintain the legal status of a daily paper. This is all the more so in view of a somewhat recent act of the legislature defining holidays and prohibiting the performance of public business thereon when not required by necessity. The paper which observes the holiday by such omission is still printed "daily" within the contemplation of the statute.

H. W. CHILDS, Attorney General.

Aug. 5, 1895.

102

**LEGAL NEWSPAPER**—The mere fact that on a single occasion the publisher of a paper is unable to deliver the required number of copies would not in itself affect the legal status of the paper.

ATTORNEY GENERAL'S OFFICE.

Hon. A. G. Sexton, Judge of Probate,

Dear Sir: In order to divest a legal newspaper of its status as such under the statutes of this state by reason of failure to deliver the requisite number of copies thereof at the postoffice on its regular day of publication, it must appear that such failure was due to unavoidable and excusable accident.

The mere fact that on a single occasion the publisher of a paper is unable, for insurmountable reasons, to deliver the required number of copies, would not in itself affect the legal status of the paper, nor, in my judgment, of any publication appearing therein. It would be a harsh and unreasonable construction of our statute to adopt any other view of it.

H. W. CHILDS, Attorney General.

Dec. 3, 1895.

103

## LEGISLATION.

**SCHOOL TEXT-BOOK FUND**—School text-book fund may be abolished or carried to another fund within the discretion of the legislature, save the limitation pointed out in the opinion.

ATTORNEY GENERAL'S OFFICE.

Hon. A. B. Robbins, Chairman Committee on Appropriations, House of Representatives,

Sir: In your communication of the 9th inst. you inquire, in effect, whether moneys now belonging to the school text-book fund may lawfully be carried to the internal improvement fund. You also inquire, with a view to expressing yourself in different form, whether moneys belonging to the general revenue fund may be carried to "another and entirely distinct fund."

The two forms of your question are not, in my opinion, convertible expressions, and will therefore be separately considered.

The respective funds known to the state auditor's and state treasurer's departments are, with not to exceed three exceptions, of statutory origin, and when so derived constitute no barriers to legislative action. The exceptions are enacted by the constitution, one of which is the "internal improvement

land fund" (Art. 4, sec. 32 b); another is the fund which may be created by the issuance and negotiation of bonds to aid in the construction of certain public buildings (Art. 9, sec. 14 a); another is the fund created for the purpose of defraying extraordinary expenses (Art. 9, sec. 5). The constitution prohibits the diversion of moneys belonging to either of the last named funds to other purposes than those expressly authorized. All other funds are clearly within legislative control.

It therefore follows that the school text-book fund may be abolished or carried to another fund within the discretion of the legislature, save the limitation hereinafter pointed out.

The internal improvement fund, sometimes confounded in the popular mind with the internal improvement land fund, arises from moneys derived from a donation from the federal government of "five per centum of the net proceeds of sales of all public lands lying within the state." (Act authorizing state government, sec. 5, par. 5.) Moneys derived from this source are paid to the state "for the purpose of making public roads and internal improvements as the legislature shall direct." They are, in short, if the state is to keep faith with the government, to be devoted to purposes of internal improvements, as those terms are employed in the constitution. The state is prohibited by section 5 of article 9 of the constitution from being "a party in carrying on" works of internal improvement, "except in cases where grants of lands or other property shall have been made to the state especially dedicated by the grant to specific purposes."

That roads and bridges are works of internal improvement can no longer be doubted, in view of the language used by the supreme court of this state in the case of *Rippe vs. Becker et al.*, 57 N. W. Rep. 31. It is therefore obvious that the only purpose sought to be subserved by carrying moneys from the school text-book fund to the internal improvement fund is to render them available for a use which is clearly prohibited by the constitution.

The first form of your question is therefore answered in the negative.

H. W. CHILDS, Attorney General.

Feb. 11, 1895.

104

**APPROPRIATIONS—DRAINAGE**—The legislature is prohibited from appropriating money for the purpose of establishing a system of drainage. Such appropriations can only be authorized when made for the purpose of preserving the lives and health of the citizens of this state and perhaps to improve its own lands.

ATTORNEY GENERAL'S OFFICE.

Hon. Frank A. Day, President of the Senate,

Sir: I beg to acknowledge receipt of the resolution of the honorable senate adopted on the 28th ult., requesting my views "as to the constitutionality of appropriating any money whatever, and if so, what money, for the purpose of draining wet lands and for constructing roads and bridges."

The question presented by the resolution involves an inquiry into the purport of the following provision, contained in article 9 of section 5 of the state constitution:

"The state shall never contract any debts for works of internal improvement, or be a party in carrying on such works, except in case where grants of land or other property shall have been made to the state especially dedicated by the grant to specific purposes; and in such cases, the state shall devote thereto the avails of such grants and may pledge or appropriate the revenues derived from such works in aid of their completion."

At the outset, it may be said as an incontrovertible proposition, that roads and bridges, and a system of drainage are internal improvements within the contemplation of the above provision of the constitution; and it therefore follows that the state cannot, in the absence of appropriate donations to it for such purposes, either contract debts therefor, or be a party in carrying them on. (*Rippe vs. Becker*, 57 N. W. Rep. 331.)

What is thus plainly prohibited cannot be overcome by indirection. In whatever guise the legislature seeks to commit the state to the support of

such enterprises by devoting or pledging to them, whether legally or morally, directly or indirectly, the public revenues, it is equally offensive to the constitution. This is all the more apparent when the evils sought to be forestalled are borne in mind. In adopting their constitution, the people of the state sought to so tie the hands of their legislatures as to forever guard against the financial ruin which had overtaken several of sister states which had adopted improvident policies of internal improvement. The provision in question, as construed by our supreme court, embraces in its scope a great variety of objects. The language of the court is so instructive in this respect that I take occasion to make the following excerpt therefrom:

"The far-reaching consequences of restricting this constitutional inhibition to highways for travel and commerce can readily be foreseen. It would leave the state, through its legislature, at liberty, in every period of invasion or excitement, to embark in any and every other sort of enterprise outside of its legitimate governmental functions, which might be deemed of public benefit. It would admit not only the building of grain elevators, but also of engaging in schemes of drainage, irrigation, developing water powers, building public grist mills, public creameries and cheese factories, establishing stock yards and packing houses, and other like enterprises almost without limit. Certainly, to engage in such enterprises as these at the expense of the taxpayers of the state, is quite as much within the mischief aimed at by the constitution as to engage in the construction of highways for commerce."

The legislature is therefore prohibited from extending the aid of the state to any of the objects suggested by the court, unless it has been the recipient of grants of lands or other property therefor. When the legislature devotes the revenues of the state to the construction of a public elevator, public bridge, or public ditch without a previous grant, the constitution is thereby violated, nor do I perceive how this prohibition can be overcome by donations from the public treasury to a municipality for such an object. If any other doctrine is to obtain, an avenue is at once afforded for the certain defeat of the purposes sought to be effected by the framers of the constitution.

But while conceding the force of these views, it may be urged that an appropriation for a system of drainage can be justified upon one or the other of the following grounds:

1. That the lands acquired by the state pursuant to the act of congress of March 12, 1860, are impressed with a trust that the state should employ them or the proceeds derived from their sale, as far as necessary, in constructing levees and reclaiming them to useful purposes.

2. That the state may improve its own lands.

3. That a system of public drainage may be undertaken as a police regulation for sanitary purposes.

The question is one of so grave importance that I deem it proper to present my views somewhat at length as to each of the above named contentions.

Notwithstanding the explicit terms in which the said act is drawn (Rev. St. U. S., sec. 2479), it is yet left to the discretion of the state to determine for itself what disposition shall be made of its swamp lands derived from such a source. "As the application of the proceeds to the named objects is only prescribed 'as far as necessary,' room is left for the exercise by the state of a large discretion as to the extent and the necessity." (*Am. Emigrant Co. vs. Adams Co.*, 100 U. S. 161; *Mills Co. vs. Burlington R. R. Co.*, 107 U. S. 578.)

The application of the proceeds of such lands to the purposes of the grant rests upon the good faith of the state. Clearly, the proceeds of the sales of such lands, whether in money or other subjects, may be properly devoted to any of the purposes named in the grant. But where the state has bestowed them as to preclude any returns therefrom into its treasury, as has generally been done by the several grants made to certain of its beneficiaries, it must be deemed to have determined that necessity did not require their devotion to levee or reclamation purposes. Such disposition of them is wholly incompatible with a reserved purpose to carry on a system of drainage on account of the federal bounty, and an acknowledgment that the state had thereby exhausted its powers with regard to them. The grants so made by the state are in the nature of gifts resting upon no other consideration than contemplated benefits to the public at large, flowing from the enterprises they were designed to foster. In pursuing such a course, the state may indeed



have betrayed the trust confided to it by the federal government; but, in such event, the reparation must be effected, if at all, by the people and not the legislature.

I am therefore unable to subscribe to the first contention.

Can the state improve its own lands? Undoubtedly it may do so as to lands requisite for the purposes of government, as the sites of public buildings, and perhaps it would be likewise true even as to the wild lands of the state in those cases where public policy requires their improvement by suitable drainage. But if this were conceded, I am yet clearly of the opinion that the constitutional inhibition against internal improvements applies with equal force as well when the improvement to such lands is only incidental, as when the question of such benefits is not involved. The prohibition, as defined by Justice Mitchell in *Rippe vs. Becker*, supra, is very sweeping, and, if any exception in such a case had been intended, it would have been clearly so provided. That the state enjoys the inherent right of protecting, through its legislature, by suitable police regulations, the lives and health of its citizens, is undeniable. Moreover, it remains with the legislature to determine what measures are requisite for such purposes. If swamps, marshes and other low lands are deemed prejudicial to life and health, adequate provision may be made for the correction of the evil, either by the construction of levees or drains. Appropriations for such purposes are clearly within the contemplated power of the legislature; but it is equally obvious that the constitution is as much violated when the improvement is made under the mere guise of a police regulation as when its real purpose is clearly expressed upon the face of the appropriating act. Courts never hesitate to look through disguises and adjudge measures according to their manifest purposes. (*Minnesota vs. Barber*, 136 U. S. 313.) If, therefore, the revenues of the state are employed *in fact* for internal improvements under the semblance of a sanitary regulation, it is in plain violation of the terms of the constitution.

I have already had the honor to advise one of the committees of the house of representatives during the present session of the legislature, that appropriations to aid in the construction of bridges and highways in the absence of grants of lands or property therefor, are unauthorized.

H. W. CHILDS, Attorney General.

March 5, 1895.

105

**CLASSIFICATION—Legislation is not authorized which classifies cities for the purpose of limiting the offices which have not duties pertaining thereto.**

ATTORNEY GENERAL'S OFFICE.

Hon. C. F. Staples, Member House of Representatives,

Dear Sir: Calling my attention to the provisions of House File No. 500, you inquire whether in my opinion it may be enacted into a law restricted in its operation to cities of less than 100,000 inhabitants.

The proposed measure relates to the duties of an office which is in no sense a city office. Upon no just basis of classification could such a law be restricted in application to any class of cities. While legislation may, as a general proposition, be enacted with reference to a classification of cities or counties, the classification for such purpose must rest upon some natural reason or practical necessity. (*State vs. Cooley*, 58 N. W. Rep. 150.) Population may sometimes constitute a valid basis for such classification but I am of the opinion that no such basis could properly serve a classification for a purpose like that indicated in the said measure. There is no practical necessity, no obvious reason, for requiring the duties, or allowing the privileges, as to offices in counties containing a population of less than 100,000 with no such requirements or privileges as to other counties. Such classification is merely capricious and not allowable.

March 8, 1895.

H. W. CHILDS, Attorney General.



## NOXIOUS WEEDS.

**EXPENSES—WEED AGENT**—Expenses incurred for the destruction of thistles in highways are to be borne by the respective townships and villages in which they were destroyed, save that where townships have not been organized the expense is to be borne by the county. A weed agent is to destroy all weeds growing in the highways before the expiration of the time allotted by the board of county commissioners, and in case of the omission of the owner of land to destroy thistles within such time, he is authorized to enter upon such land and destroy all such weeds then standing or growing thereon.

ATTORNEY GENERAL'S OFFICE.

A. J. Volstad, Esq., County Attorney,

Dear Sir: In yours of the 19th inst. you submit the following questions:

1. Should the town pay out of its own funds for destroying thistles not on the highway?

2. Should a weed agent specify in his report the tract on which thistles were destroyed on a highway and is this expense chargeable on the land?

3. Does the state reimburse the town for money expended in destroying thistles on a highway?

It is true, as you suggest, that the intention of the legislature upon the subject of Russian thistles is obscure by reason of the apparently contradictory language sometimes employed. From a careful reading of all the legislation enacted at the last session of the legislature upon the subject of noxious weeds, I am of the opinion that we must look to chapter 274 as the only controlling legislation upon the subject of Russian thistles. The last section of chapter 272 disclaims any intention to modify, repeal or affect any of the provisions of chapter 274. Inasmuch as certain of the provisions of chapter 272 as affecting the subject of Russian thistles are inconsistent with provisions contained in chapter 274, it is proper to regard the provisions found in the first named act inoperative and of no effect so far as the question of the jurisdiction of officers or the expenses incident to the eradication of the weed is concerned. Chapter 272 is restricted exclusively to weeds growing in highways. Chapter 273 does not involve the subject of Russian thistles; while chapter 274 is restricted exclusively thereto.

The act provides that the board of county commissioners shall fix a time within which Russian thistles shall be destroyed. It further provides for the appointment of a weed agent with such jurisdiction as shall be allotted him by the appointing authority. The duties of such agent are two-fold: First, he is to destroy all weeds growing in the highways before the expiration of the time appointed by the board of county commissioners. Second, in case of the omission of the owner of any land or lands to destroy the thistle within the time thus prescribed, it is made the duty of the agent to thereupon and after the expiration of such time, enter upon such land and destroy all such thistles found standing and growing thereon.

In performance of such duty he is authorized to employ assistants, whose compensation is to be fixed by the board or council appointing him.

Expenses incurred for the destruction of thistles in highways are to be borne by the respective townships and villages in which they were destroyed, save that where townships have not been organized the expense is to be borne by the county. On the other hand all expenses arising from the destruction of weeds upon the lands of delinquent owners are to be audited by the board of supervisors, and the amount thereof allowed is to be certified by the board or village or city council, as the case may be, to the board of county commissioners. The board of county commissioners pass upon the bills thus certified, and if approving the same, and in the absence of an appeal, the county auditor draws his warrant for the amount so allowed. Finally, the county auditor after all bills have been allowed and paid by the county, certifies to the state auditor the full amount thereof, and thereupon the state reimburses the county for the amount thus expended by it. The amount

thus expended by the state is to be recovered back into the state treasury by a tax upon the respective tracts of land which have been benefited by the destruction of the weed.

If the foregoing is a sound exposition of the law, and I am convinced that it is tenable, your questions admit of easy solution.

The first is answered in the affirmative. The second and third are answered in the negative.

H. W. CHILDS, Attorney General.

March 21, 1896.

107

**WEED AGENT—TERM—RAILROAD LANDS**—The duties of a weed agent are restricted to the destruction of Russian thistles. His term is co-extensive with the season in which the weed is growing.

Railroad lands are not exempted from the operation of the statute.

Whether the expense of removing weeds therefrom by public authority may be taxed against such lands: Query?

ATTORNEY GENERAL'S OFFICE.

Mr. F. J. Kron, Town Clerk.

Dear Sir: I am not at all surprised that you express yourself as being confused as the result of your study of the several acts upon the subject of noxious weeds. The legislation is extremely unfortunate as to many of its expressions.

A weed agent, strictly speaking, is recognized only by chapter 274, General Laws 1895. His duties are restricted to the destruction of Russian thistles. While the statute does not, in express terms, fix the duration of his term of office, I deem it the better view, however, to hold that he should be appointed annually. In other words, his term is governed by the season in which the weed is growing. He is not an officer, in the broad sense of the term, but merely the agent of the township, village or city, as the case may be, for the destruction of the weed. A weed agent, as I have above suggested, is restricted in his duty to the destruction of Russian thistles, and has nothing whatever to do with any other noxious weed.

General Laws 1895, chapter 274, declares the Russian thistle to be a public nuisance and makes it an offense for a person to knowingly permit or suffer the same to grow or remain upon lands owned or occupied by him, or over which he has control. If such person neglects to remove the same, after notice duly given, he is subject to the penalty as prescribed in section 2 of the act, and thereupon the weed may be removed by public authority at the expense of such person. So far as the liability of the owner or occupant of lands is concerned, no distinction can be drawn between the lands owned by a railroad company and pertaining to its grant and those owned by private individuals. Whether the expense could be recovered by a tax against such railroad lands which are exempt from ordinary taxation, presents another question. I am, however, of the opinion that such tax does not fall within the contemplation of the statute providing for a computed method of taxation, and that therefore a tax may be enforced against all lands, regardless of their status or ownership.

The compensation of township officer is a matter to be submitted, like all other propositions, to the electors at the meeting, after the same has been regularly opened and organized.

All I can properly say in reply to yours of the 11th inst. is that any person who willfully votes or procures another to vote fraudulently upon any public question at a public election is subject to prosecution therefor. The facts presented by you should be brought to the attention of your county attorney, who will take such action as the circumstances may seem to require.

March 23, 1896.

H. W. CHILDS, Attorney General.

**DENTAL EXAMINERS**—The prohibition against holding more than two successive terms as a member of the board of dental examiners applies when one of the terms was pursuant to an appointment to fill a vacancy.

ATTORNEY GENERAL'S OFFICE.

To His Excellency, D. M. Clough, Governor,

Sir: In your communication of the 2d inst. you state that Dr. H. A. Knight was, on the 13th day of July, 1888, appointed a member of the state board of dental examiners to fill a vacancy; that at the time of such appointment the full term of the office as prescribed by law was five years; that the appointee above named occupied his said office during said period, with the exception of about five months; that on the expiration of the term for which he was appointed, Jan. 16, 1893, he was reappointed for the ensuing term of three years.

In view of General Statutes 1894, section 7907, providing that no person shall serve to exceed two terms in succession on the said board, you inquire whether Dr. Knight is now eligible to reappointment to his said office.

This statute does not, in my judgment, recognize in its prohibition a part of a term. The purpose is to prohibit one occupying the said office for any portion of two succeeding terms. Dr. Knight, having already served the statutory limit, is now ineligible to a reappointment.

H. W. CHILDS, Attorney General.

Jan. 3, 1896.

**RAILROAD AND WAREHOUSE COMMISSION**—The office of railroad and warehouse commissioner may be made elective.

ATTORNEY GENERAL'S OFFICE

Hon. Hiram F. Stevens, Chairman Judiciary Committee of the Senate.

Sir: I beg to acknowledge receipt of your communication of the 23d inst., in which you inquire whether Senate File No. 550 violates any constitutional provision.

The proposed measure provides in brief, among other things, for making the office of railroad and warehouse commissioner elective, instead of appointive, as at present. The purport of your inquiry is, whether the legislature has the power to make the change contemplated in the said measure as to the manner of the election of the incumbents to the said office.

A similar question has, in one form or another, been presented to this office on several previous occasions, and was on each thereof answered in the affirmative. Under date of March 23d, 1891, my immediate predecessor considered it at some length in the light of the several material provisions of the constitution, and reached the view above stated. Although on two subsequent occasions I followed approvingly his conclusion, I have, nevertheless, since the receipt of your inquiry, considered the question *de novo*, with the result that I am confirmed thereby in my previously entertained views of the law.

Without dwelling upon the considerations tending to support the conclusion thus reached, I feel confident that no other would be consonant with the plain intent of article 4, section 4 of the constitution, wherein power is conferred upon the governor "to appoint a state librarian and notaries public, and such other officers as may be provided by law," and to "fill any vacancy that may occur in the office of secretary of state, treasurer, auditor, attorney general, and such other state and district offices as may be hereafter created by law."

The language above quoted clearly contemplates, in my judgment, authority on the part of the legislature to create other state and district offices than those named in the constitution, and to provide for the filling of the same by an election.

Your question is therefore answered in the affirmative.

H. W. CHILDS, Attorney General.

March 25, 1895.



**SURVEYOR GENERAL—FEES**—Surveyor General is entitled to ten cents per thousand feet for the first 500,000 feet of logs scaled, whether the feet scaled is more or less than that amount. He is not entitled to mileage.

Hon. R. C. Dunn, State Auditor.

ATTORNEY GENERAL'S OFFICE.

Dear Sir: Calling attention to the provisions of section 29 of the act passed the present year, relative to the office of surveyor general, you inquire in effect whether the surveyor general is entitled to compensation at ten cents per thousand feet for the first 500,000 feet in a case where the feet scaled is in excess of that amount.

I am of the opinion that it is the intention of the law to allow compensation at that rate. Any other rule would result in his being entitled to a great deal more, as fees, where he scaled 495,000 feet than he would be if he scaled 800,000 feet. This is clearly not the intention of the law.

Section 50, of chapter 38, of the General Statutes 1878, as amended by chapter 102 of the Laws of 1885, provides that the provisions of chapter 32 of the General Statutes should apply to all timber or logs cut upon state lands. Under section 16 of said chapter 32, the surveyor general is allowed a fee of five cents per thousand feet for all logs and timber required to be scaled, and for traveling to perform any service more than two miles from his office, five cents per mile going and returning. However, section 43 of House File No. 380, passed at the last session of the legislature, expressly repeals section 50 of chapter 38 of the General Statutes. You are therefore advised that under the law as it now stands, the surveyor general is not entitled to charge mileage for services rendered the state in scaling timber.

Oct. 5, 1895.

H. W. CHILDS, Attorney General.

**FEES—SURVEYOR OF LOGS AND LUMBER—REPEAL**—The act of 1895 expressly repeals the pre-existing law and fixes the compensation of the surveyor general.

Hon. R. C. Dunn, State Auditor,

ATTORNEY GENERAL'S OFFICE.

Dear Sir: I have recently received a communication from Hon. William Getty, surveyor of logs and lumber for the Fifth district, in which he requests me to review the opinion expressed in my communication to you under date of Oct. 5, 1895.

Mr. Getty insists, with some degree of force, that the conclusion therein reached is at variance with the manifest purpose of the provisions of law upon the subject. I have accordingly given the subject a careful consideration, with the result that I am unable to adopt his construction of the statute.

I am convinced, both by the terms of the law of 1895 and the considerations which actuated the framers of the law, that General Statutes 1878, chapter 32, section 16, is no longer operative as applied to the surveyor of logs upon state lands. When General Statutes 1878, chapter 38, was adopted, it was therein expressly provided that the surveyor general should receive compensation as provided in said section 16. The act of 1895 expressly repeals section 50 of chapter 38 and fixes the compensation of the surveyor general. This must be deemed conclusive to provide the full measure of compensation that officer is to receive for his services. If the legislature had intended that he should also receive a mileage, as expressed in chapter 32, or otherwise, such intention would have been plainly expressed in connection with the repeal of said section 50.

The views expressed in my former communication to you are therefore adhered to.

Jan. 20, 1896.

H. W. CHILDS, Attorney General.



**COURT REPORTER—COMPENSATION—**Whenever, in matters of great public interest, a transcript of the testimony taken at the coroner's inquest is necessary to a proper prosecution of one charged with crime, it will be proper to employ the services of a stenographer for that purpose at the expense of the county.

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney.

Dear Sir: Calling attention to the several statutes relative to the duties and compensation of the court reporter in and for Ramsey county, you state that at your request he has attended coroner's inquests and has furnished transcripts of the testimony there given which you desired to use in the trials and preparations of criminal cases, and has also transcribed for you certain portions of testimony given in court upon the trials of criminal cases for your use in such trials and arguments; and you inquire whether the board of county commissioners may properly allow the reporter reasonable compensation for such transcripts.

Whenever, in matters of great public interest, a transcript of the testimony taken at the coroner's inquest is necessary to a proper prosecution of one charged with crime, it will be proper to employ the services of a stenographer for that purpose. In such a case the expenses thus incurred may properly be allowed by the county commissioners. This is, however, far from saying that transcripts of testimony in all cases, regardless of their importance, may be obtained at the county's expense.

When a transcript of any portion of the testimony adduced at a trial is desired by the county attorney of Ramsey county, it can be obtained pursuant to Session Laws 1887, chapter 107, section 2.

Inasmuch as it is there made the duty of the reporter to furnish the transcript for any purpose the judges may direct, it could, no doubt, be procured in a proper case in that way. It therefore seems to follow that the county should not be required to pay for that class of transcripts.

H. W. CHILDS, Attorney General.

Feb. 1, 1896.

113

**DISTRICT JUDGE—**A district judge is entitled to hold his office for the period of six years from the date of his induction therein.

ATTORNEY GENERAL'S OFFICE.

Hon. John W. Willis,

Dear Sir: In your communication of the 20th ult. you request my views as to the date of the termination of your term as member of the district bench of the Second judicial district, and assign as your reason for the submission of the question to me the fact, that "some commotion and anxiety is naturally caused by suggestions of doubt as to your continued term of office."

It is only in view of the public importance of the question that I undertake to advise you in reply to your inquiry, as any opinion on my part at this time is, at best, merely anticipatory of my official action in case the aid of my office shall hereafter be invoked in a proceeding to test your right to the said office.

As an act of courtesy to Hon. R. A. Walsh, I at once advised him upon the receipt of your communication of the tenor thereof, and invited such a statement of his views upon the question submitted as he might be pleased to make.

He having promptly signified a desire to be heard upon the question, I have delayed this reply until the present date, as well to accommodate him as to avail myself of whatever considerations he might urge.

The facts briefly stated material to the inquiry are as follows:

Hon. Orlando Simons was elected to the office of district judge in the said district for the term beginning in January, 1889, and terminating, under ordi-

nary circumstances, at the beginning of the official year commencing in January, 1895. A vacancy occurred in the said office by reason of the death of Judge Simons, which was filled by the appointment of Hon. W. D. Cornish, who continued in office until the relinquishment thereof to you in January, 1893.

The terms of Hon. H. R. Brill and William L. Kelly will expire with the present year, and accordingly nominations were made by the several political parties in the said district prior to the late general election, with a view to the selection of their successors in office. No nominations were made for the election of your successor, as it was generally conceded that you were entitled to hold for the period of six years from the date of your induction into office. No doubt attends the election of Judges Brill and Kelly; but it is contended by Mr. Walsh that inasmuch as he received the highest number of votes, excepting them, he is thereby elected as your successor, provided, of course, you are entitled to hold under your election in 1892 only for the remainder of the original term of Judge Simons, which would have expired, as already indicated, with the beginning of the official year in January, 1895.

Although Mr. Walsh has presented his claims with great ability in the briefs handed me by his counsel, I am unable to subscribe to the conclusion he seems to have reached, as I regard the question long since settled by the case of *Crowell vs. Lambert*, 9 Minn. 267.

Whether or not the decision in that case is sound and in accord with the weight of authority in this country, it is sufficient for my guidance in determining the question submitted.

While the office there involved was that of a judge of probate, I am unable to discover any distinction in principle which saves the office of district judge from the force of that decision.

It was there held, stating the proposition broadly, that a person who may be elected on the happening of a vacancy to fill an office falling within the contemplation of the constitution wherein provision is made for the filling of such a vacancy, holds the office for the full constitutional original term, and not merely for the unexpired term of his predecessor.

Furthermore, it is proper to state that this office, as well as the bar generally, has deemed the question closed in this state, by the case above cited.

It is therefore my opinion that you are entitled to hold your present office for the full term of six years from the date of your induction therein.

Dec. 5, 1894.

H. W. CHILDS, Attorney General.

114

**REFEREE'S FEES**—A referee appointed pursuant to General Statutes 1894, section 5391, is entitled to a per diem of not to exceed five dollars.

Hon. R. C. Dunn, State Auditor.

Dear Sir: I beg to acknowledge receipt of your communication of the 5th inst., in the matter of the bill of Mr. O. B. Lewis as referee, pursuant to General Statutes 1894, section 5391.

It has been the uniform holding of this department, as well as your own, that General Statutes 1894, section 5572, imposes a limitation upon the court as to the amount of fees which can be taxed in such cases, and in my judgment that is the correct view to take of the statute. The first named section requires the fees of the referee to be taxed by the judge making the order of reference; that is to say, the statutory fees prescribed in section 5572.

I regret that I am unable to adopt any other construction, as in many cases the statutory fee must prove clearly inadequate to the value of the services performed, but the legislature has been disposed to fix the maximum at five dollars per day, and those who accept the appointments must be content with the fee thus provided.

Feb. 8, 1896.

H. W. CHILDS, Attorney General.

**ELIGIBILITY**—The application of the Constitution of Minnesota, article 4, section 9, to various offices considered.

#### ATTORNEY GENERAL'S OFFICE.

In the Matter of Certain Public Offices.

Inquiries having arisen from several official sources as to the scope of article 4, section 9 of the constitution of this state, in view of the decision by the supreme court in the recent case of State vs. Sutton, I deem it advisable in reply to such inquiries to cover them in one opinion, rather than several.

That the constitution contemplates appointive as well as elective offices is settled permanently by the above decision. There was no occasion for the court in that case to define an office within the meaning of the constitution, as it was conceded by counsel, and very properly, that the position of boiler inspector is an office.

The courts of this country, with slight conflict, are agreed in defining a public officer as one "who has any duty concerning the public, and he is not the less a public officer when his authority is confined to narrow limits, because it is the duty of his office and the nature of that duty which makes him a public officer, and not the extent of his authority."

This definition was in vogue long before the adoption of the constitution of this state, and may properly be deemed to express the sense in which the term "office" is employed in the section in question. The court emphasized the fact that "it was the intention of the framers of the constitution by the language used to prevent so far as possible trafficking in public offices." It is therefore obvious that the word "office" is vested with a meaning as broad as the evils which the constitution seeks to forestall; and it may be noted in this connection as a significant fact that out of the whole category of official positions the only office excepted in the prohibition is that of postmaster.

The constitution must, in my judgment, be held to contemplate every office created or authorized by the constitution or an act of the legislature. A few cases may be found which militate against this view, but it is supported both by reason and the weight of authority. When it is remembered that the power of the legislature over all statutory offices is supreme, and that at the time of the adoption of the constitution the term and emoluments of all such offices were subject to unrestricted legislative control, I am unable to discover any just ground for distinction between them. All offices are therefore created by authority of the state, and fall within the prohibition, whether they involve functions directly pertaining to the government of the state or to some political subdivision thereof. This will be further demonstrated by what is hereinafter said in connection with specific offices.

**Notary Public**—The case with which the commission of a notary public may be obtained, and the large number of such commissions which have been issued, may have tended to create the impression in the popular mind that a notary public is not a public office. If so, it is at variance with the fact. Within the contemplation of the statute which creates it (Gen. Stat. 1878, chap. 26), it is an office of great importance and the appointment is presumed to be made with prudence and a view to the public welfare. The appointment is made by the governor, "by and with the advice and consent of the senate." The term is fixed by law; the appointee is required "to take and subscribe the oath required by law," and to give a bond to the state, and "before entering upon the duties of his office," to provide himself with "the proper official seal." Provision is further made for his removal from office. Few offices are of more ancient origin or of wider public recognition. These views are apparently well supported by the following cases: Kirksey vs. Bates, 31 Am. Dec. 722; Governor vs. Gordon, 15 Ala. 72; 16 Am. & Eng. Enc. of Law, 73.

It follows that the office is within the prohibition of the constitution.

**Municipal Officers**—Municipal officers, as already suggested, are not excepted from the prohibition.

The constitution of Missouri contained a provision similar to the one in question. In the case of State, ex rel. vs. Valle, 41 Mo. 29, it was held that the



appointment of one as a member of the board of water commissioners of a certain city was in violation of that provision. The court there used the following language:

"In a certain popular acceptance, the words 'civil officers' under this statute might possibly be interpreted to mean state officers in the sense of participating directly in the administration of the state government as such; but they are none the less civil officers under the state, because their functions are confined to the local administration. The offices are created and the officers are appointed and their powers given and their duties defined and their salaries fixed directly by act of the legislature. They exercise and share all the powers of civil government and their authority comes directly from the state. They are to be considered as much civil officers under this state as the judge of the court or the mayor of the city."

The same view was taken in *Shelby vs. Alcorn*, 36 Miss. 273. It was there held, that, "A member of the board of county police or a justice of the peace is as much an officer under the state as the executive, the heads of department or a member of the judiciary. \* \* \* It was precisely to such offices that the prohibition was intended to be applied. For it does not embrace offices which it was competent for the legislature to create and which might be filled by appointment and not by popular election, a most salutary provision of the constitution would be utterly nugatory."

The conclusion seems unavoidable that a member of the legislature is prohibited from holding during his term any city, village, county or township office.

*State Boards*—From what has already been said, it follows that the constitution prohibits members of the legislature from occupying positions upon the several state boards created by law for certain purposes. These positions are offices within the purview of that instrument. It has been held in other states that such a character attaches to the following positions: A medical superintendent of the hospital for the insane (*State vs. Wilson*, 29 Ohio St. 347); a resident physician of such an institution (*People vs. Langdon*, 8 Cal. 1); commissioners to construct a public road (*People vs. Henry*, 46 N. Y. 375); commissioners to erect an asylum (*People ex rel. vs. Comptroller*, 20 Wend. 595); commissioners to erect a new state house (*People vs. Kennon*, 7 Ohio St. 546); a public printer (*Brown vs. Turner*, 70 N. C. 93); a commissioner to collect public moneys (*Commonwealth vs. Evans*, 74 Pa. St. 124).

The supreme court of Illinois, in *Bunn vs. People*, 45 Ill. 397, adopts a view which militates against the doctrine declared in the cases above cited. That decision did not, however, receive the unanimous support of the members of the court, and the opinion of the dissenting justice seems to express the sounder view and accords with the settled weight of authority in this country.

It was held by one of my predecessors that a member of the board of regents is not an officer within the purview of the constitution. It was there assumed that that board is a body vested with corporate powers and to all intents and purposes a corporation entirely separate and distinct from the state. (Op. Attys. Gen. 43.) If that is a just assumption, and I do not now desire to question it, the conclusion reached was perhaps the proper one. If, however, it tends to militate against the conclusion herein reached, I decline to follow it.

*Subordinates*—When the statute has provided for a position in any department with fixed term and salary to which an official title is prescribed, and the incumbent whereof is to share in the performance of the duties imposed upon the head of that department, such station is a public office within the definition above given. Without enumerating the several positions constituting this class, it is sufficient to say that the deputies and assistant factory inspectors provided by General Laws 1893, chapter 6, section 7, are within the definition. I name these officers by reason of an inquiry recently raised by the commissioner of labor.

In reaching the views above expressed, I have been guided more by the manifest purpose of the framers of the constitution than by the judicial expressions of the courts in the cases cited. A careful study of the subject has convinced me that there is no safe halting ground within the utmost bounds of official station. The court has pointed out the reasons which actuated the



framers of the constitution in adopting section 9. It was unquestionably designed to keep the sources of the law pure; and to remove even the temptation of using the lawmaking power as an instrumentality for personal advantage.

H. W. CHILDS, Attorney General.

Dec. 26, 1895.

116

**SUPERINTENDENT OF SCHOOLS**—The office of superintendent of schools in Ramsey county considered and held that no vacancy exists therein by reason of the facts stated.

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Dear Sir: You state that the candidate for the office of superintendent of schools of Ramsey county who received the highest number of votes cast for such office was ineligible thereto for the reason that he had not been naturalized or declared his intention to become a citizen of this country prior to the general election held in 1894. Since that time he has qualified himself in such regard and is now an applicant for appointment to the said office by the board of county commissioners upon the theory that a vacancy now exists therein. The board of county commissioners have deferred action in the matter for the purpose of being advised by you whether or not a vacancy does in fact exist.

The amendment to the constitution adopted Nov. 6, 1883, is relied upon by the applicant for appointment, and it is urged that the term of said office ended by reason of such amendment on the 7th day of January, 1895.

There is seeming force to this view, but it is not, in my opinion, the proper construction to place upon the language of that amendment. In the case of *State vs. Frizzelle*, 34 Minn. 460, in which that provision of the constitution was thoroughly considered, the court held that "it is not dealing with the *terms of office*" as "that matter has been elsewhere disposed of." Furthermore, the court say, in *Taylor vs. Sullivan*, 45 Minn. 310: "If the election of the respondent was not legally authorized, the relator would continue to hold the office by force of this express provision of the statute"—having reference to General Statutes 1878, chapter 8, section 210. It is true it does not appear from the decision in the last named case that attention was drawn to the said amendment, but in view of what was said in the former case, I do not feel justified in assuming that a different result would have been reached if the amendment had been strongly pressed upon the consideration of the court. It may be further said in support of this view, that neither the framer of that provision nor those who supported it in the legislature would have sought to effect so sweeping a repeal of pre-existing legislation without evincing it in unmistakable terms. Certainly the prevailing opinion, both among lawyers and laymen, is that, with very few exceptions, the incumbent holds over until his successor is elected and qualified.

I am therefore of the opinion that no vacancy exists in the said office, but that the old incumbent will continue in office during the present official term.

H. W. CHILDS, Attorney General.

Feb. 5, 1895.

117

**GAME AND FISH COMMISSION—VACANCY**—General Laws 1895, chapter 115, did not create a vacancy in the membership of the board of game and fish commissioners.

ATTORNEY GENERAL'S OFFICE.

His Excellency, D. M. Clough, Governor,

Dear Sir: In my communication of the 9th inst. you were advised that the effect of the passage of House File No. 380 was to legislate from office the members of the board of game and fish commissioners as that board was constituted at the date of the passage of the said act. At the request of the

board, expressed through its counsel, I have reconsidered the question, with the result that I am convinced that my former opinion was erroneous. In advising you upon the former occasion, I greatly relied upon the belief that section 1 of the statute amended did not contain the following words: "And shall constitute the first board under the provisions of this act." In this I was clearly in error, as disclosed by subsequent examination. As the only change made in the language of the pre-existing law by the amendment of 1895 is to substitute the word "two" in place of the word "six," it should, in all other respects, be deemed to continue in uninterrupted force and effect. This view is supported by the great weight of authority (Sutherland on Stat. Con. 133), and has been adopted by the supreme court of this state. (*Burwell vs. Tullis*, 12 Minn. 572.)

My communication of the above named date is hereby recalled, and you are advised that no vacancy was occasioned in any of the said offices unless arising from the reduction in the length of the terms thereof from six to two years.

May 20, 1895.

H. W. CHILDS, Attorney General.

118

**BOILER INSPECTOR—REIMBURSEMENT—**A state boiler inspector is not entitled to reimbursement out of the state treasury for moneys expended by him in procuring necessary books and blanks for the use of his department.

Hon. R. C. Dunn, State Auditor,

ATTORNEY GENERAL'S OFFICE.

Dear Sir: I beg to acknowledge receipt of your communication of this date, in which you state that ex-State Boiler Inspector R. C. Clark has presented a voucher calling for \$1,116, covering moneys expended by him in procuring necessary books and blanks for the use of his department. You inquire whether you may properly draw your warrant upon the state treasurer in payment of the said claim.

I have the honor to advise you that, under date of Aug. 13, 1894, in reply to a similar question, I advised the secretary of state as follows: "It appears, however, that for some time back such supplies have not been furnished them by the board, but have been purchased by the members themselves at their own expense, and you are now asked to reimburse them for such expenditures. I am aware of no authority which would warrant you in complying with such demands. Such a demand may be urged as well by a person who has ceased to be a member of the board as by those who are now in office. If any relief is to be afforded in such cases, it must be authorized by an express act of the legislature."

I see no reason for receding from the view therein expressed, and you are accordingly advised that you should decline to draw your warrant in favor of Mr. Clark as requested.

May 4, 1895.

H. W. CHILDS, Attorney General.

119

# PUBLIC BUILDINGS.

**STATE CAPITOL—OWNERSHIP OF DESIGNS —** Certain premium designs held to be the property of the persons by whom they were submitted.

ATTORNEY GENERAL'S OFFICE.

Hon. Channing Seabury, Secretary State Capitol Commission.

Dear Sir: In your communication of the 7th inst. you request my views upon the question of "whether or not our board has the right to keep the four sets of designs to which we have awarded prizes, as having stood in point of

merit second, third, fourth and fifth, and to incorporate into the design which we have adopted for the new capitol building any one or more desirable features which may be found in either of them, and not found in the accepted design of the architect whom we have selected."

It appears that your board, anticipating that it might desire to use more or less of the suggestions afforded by the premiated designs other than the one adopted, incorporated into its advertisement to architects the following language: "And all designs to which a premium is awarded shall, in consideration of such compensation, become the property of the state." The board caused to be printed certain instructions under the head of "instructions for architects," which, among other things, contained the following: "All rejected designs will be promptly returned to their authors, and nothing shown in any of the rejected designs, which is original, as to this competition, shall be adopted or made use of in the building, without proper remuneration to the author."

The printed instructions are merely gratuitous on the part of the board, as nothing of the kind is either required or contemplated by the capitol act. The statute provides that all designs submitted shall remain the property of the architects by whom submitted, "and only used in whole or in part, by agreement with and compensation to their authors." Premiums aggregating \$3,000 were required to be awarded to unaccepted designs standing "in point of merit second, third, fourth and fifth." It was incumbent upon the board to select a design "by competitive contest, and rules for its guidance were prescribed by the legislature."

The proposition made by the board to competitors was that, in consideration of the premiums to be awarded to the owners of the respective designs in the order above named, such designs should become the property of the state. Such proposition was, in my judgment, wholly in excess of authority conferred by the statute. By the terms of its advertisement, it attempted to completely nullify, in effect, the provision reserving to the architects the right to own or recover their designs. They were required to bid under that condition or not at all. This was wholly in violation of law and therefore ineffective for the purpose intended. If the board desires to avail itself of any of the suggestions afforded by the rejected designs, it can do so only by reason of an agreement entered into with the owners thereof.

You are therefore advised that the premiated designs in question should be returned to their respective owners.

H. W. CHILDS, Attorney General.

Nov. 11, 1895.

120

## PUBLIC HEALTH.

**DESTRUCTION OF ANIMALS—APPRAISAL**—An appraisal of condemned animals must take into consideration the fact of the existence of the disease with which the animal is afflicted.

ATTORNEY GENERAL'S OFFICE.

Hon. Charles H. Hewitt, Secretary Minnesota State Board of Health,

Sir: You state that a certain local board of health, acting under sections 1, 2 and 3 of chapter 200 of the Laws of 1885, caused a number of hogs to be appraised and killed; that the appraisers did not "take into consideration the fact of the existence of such disease," but appraised such hogs for their value when free from disease. You inquire in effect whether any portion of the award thus made can be paid by the state.

An appraisal which is made without taking into consideration the fact of the existence of the disease with which an animal is infected is not a lawful appraisal, and the owner of the animal will not be entitled to any part of the award so made. I may say, however, that it does not clearly appear except in one instance, that the board did not take into consideration the fact of the existence of the disease.

H. W. CHILDS, Attorney General.

Feb. 8, 1896.



**HEALTH OFFICER**—An alien is not qualified to hold the office of health officer.

**EXPENSES**—Effect of General Laws 1895, chapter 69, is to impose the burden of paying expenses incurred under General Laws 1893, chapter 132, upon the town, village or city, as the case may be.

ATTORNEY GENERAL'S OFFICE.

Hon. Charles N. Hewitt, Secretary State Board of Health.

Sir: An alien is not qualified to hold any office or position of an official character created by authority of the laws of this state. This includes the position of health officer.

The effect of General Laws 1895, chapter 69, is to impose the burden of paying the expenses incurred under General Laws 1893, chapter 132, upon the town, village or city, as the case may be. Certification to the county auditor is no longer required or effective for any purpose.

H. W. CHILDS, Attorney General.

April 8, 1896.

## PUBLIC LAND.

**HASTINGS & DAKOTA RAILWAY GRANT**—The question of the right of Russell Sage, as trustee, to a conveyance of certain lands, considered.

ATTORNEY GENERAL'S OFFICE.

His Excellency D. M. Clough, Governor,

Sir: I have examined the question of the right of Russell Sage, trustee, to a conveyance of the lands described in a proposed deed (No. 9) tendered in his behalf for your signature.

The conveyance in question is sought by virtue of the matters and things set forth and referred to in the body of the proposed instrument. Briefly stated, the facts material to the question are in substance as follows:

In 1866 congress granted to this state to aid in the construction of railroads, including one "from Hastings through the counties of Dakota, Scott, Carver, and McLeod to such point on the boundary of the state as the legislature of the state may determine, every alternate section of land designated by odd numbers to the amount of five alternate sections per mile on each side of said road." Provision was made that deficiencies arising from previous settlement, reservation or other cause should be supplied "from the public lands of the United States nearest to the tiers of sections above specified, so much land in alternate sections or parts of sections designated by odd numbers as shall be equal to such lands" thus disposed of. It was further provided that the said lands should "be subject to the disposal of the legislature of Minnesota for the purposes aforesaid and no other," and that when the governor of this state should certify to the secretary of the interior to the completion "in a good, substantial and workmanlike manner as a first-class railroad" of any section of ten consecutive miles thereof, the secretary of the interior should thereupon issue to the state patents therefor of available lands "lying coterminous to said completed section of ten miles and not exceeding one hundred sections" for the benefit "of the road having completed the ten miles aforesaid." Successive patents were to issue from time to time upon the requisite showings and certificates. (Edgerton Comp. 97.)

The Hastings, Minnesota River & Red River of the North Railroad Company was incorporated by the legislature of the Territory of Minnesota in 1857, and its name was subsequently changed to Hastings & Dakota Railway Company. It was authorized by its charter to construct and operate a railroad from Hastings over a route therein prescribed to a point on the Mis-



souri river. The route thus prescribed was somewhat modified by subsequent legislation. (Id. 582, 593.)

The congressional grant above named was accepted by the state by an act of the legislature approved March 7, 1867 (Id. 592), whereby "all the lands, interests, rights, powers and privileges" were "granted to and vested in" the said named company, subject to the conditions expressed in the said act of the legislature. The time for the completion of the road was repeatedly extended by acts approved March 4, 1869, March 2, 1871, Feb. 24, 1872, and March 8, 1878.

By reason of sales made by the company in 1872, 1880 and 1882 it conveyed away all of the railway owned, constructed or operated by it, but expressly reserved and excepted from such sale the land grant acquired by it as aforesaid. (State vs. Minn. Cent. Ry Co. 36 Minn. 252.)

Notwithstanding such sales by the company, it continued thereafter to receive conveyances from the governor of this state of lands embraced in the said grant. What proportion of the company's road was constructed prior to such sale I am not advised, but assume from the recital in the proposed deed that it was not wholly constructed at that date. It is recited in the said deed, however, that the company fully completed, equipped and put in operation its line of road from Glencoe to Ortonville prior to the first day of January, 1880.

The charter of the company was forfeited December, 1886, by the judgment of the supreme court of this state (State vs. Minn. Cent. Ry. Co., *supra*). The proceedings wherein such judgment was rendered was only instituted for and resulted in the forfeiture of the corporate existence of the company, and the decision therein reached determines nothing more. Notwithstanding such judgment of forfeiture the company enjoyed, pursuant to the general statutes of this state, a period of three years for the purpose of prosecuting and defending actions by or against it and of enabling it gradually to settle and close its concerns, to dispose of and convey its property and to divide its capital stock, but not for the purpose of continuing the business for which it was established. (Chap. 34, sec. 416.)

Subsequent to the judgment thus rendered, and within three years thereafter, the company conveyed to Russell Sage, as trustees, all its right, title and interest in and to its land grants "and all lands to accrue to said railway company under and by virtue of the said grants, with right and power to receive all deeds of conveyance therefor, which said deed was recorded in the office of the secretary of state on April 20, A. D. 1892."

In 1888 the supreme court of this state, in the case of Minn. Cent. Ry. Co. vs. Donaldson, 38 Minn. 115, speaking of the lands in question, say: "Plaintiff's default has been judicially determined and judgment entered forfeiting its charter, but the status of its land has not been affected; it still belongs to plaintiff, a corporation forbidden in March, 1886, to continue the business for which it was organized, but in full life for certain powers enumerated in paragraph 416 of chapter 34, General Statutes 1878."

To the same effect it was held by the United States circuit court, advertising to the declaration of forfeiture by the supreme court of this state in the matter above cited, that "the corporation \* \* \* did not cease to exist after the decree of the supreme court, but continued its organization and retained its officers and directors and its stockholders continued to be such with all the authority possessed before. True, the corporation only existed for the purpose of settling up its corporate business and closing up its concerns; but to do this it had full control over all its property and could dispose of it for the purposes indicated in the statute, subject, however, to the rights of creditors and stockholders." (Hanan vs. Sage, 58 Fed. Rep. 651.)

The commissioner of the general land office, in passing upon the question of the right of the stockholders of the Hastings & Dakota Ry. Co. to the enjoyment of the said grant, employs in his written decision the following language: "I therefore hold that the obligation of the United States under this grant is not discharged because the grantee corporation under the statute has become dissolved. The grant was to the state; the road has been built; the lands under the grant are certified to the state for the benefit of

her grantee, and if, as appears, that grantee company has been dissolved, its property rights under this grant clearly belong to its individual stockholders, who both in law and in natural justice are entitled to receive the benefit of these assets, subject to any contract, debts and disbursements against the fund as the trust conveyance to Sage in terms provides."

This decision was affirmed upon appeal by the secretary of the interior in his decision under date of Jan. 19, 1894.

In carrying out the purposes of the congressional grant the state serves merely as the instrumentality through which the same is to become operative. The selections of lands are within the contemplation of the act of congress, to be made by the secretary of the interior. It appears that that officer has certified the lands in question to the state "for the benefit of Russell Sage, trustee of the assets of the Hastings & Dakota Railway Company." Such certification implies a prior certificate by the governor of this state to the secretary of the interior of the completion of the said railroad in the manner contemplated by law. It has therefore been determined by the federal authorities that the said trustee is now entitled to a conveyance of the lands evidenced by the said deed.

You are therefore advised that there is no reason in law why you should not execute the said deed.

April 12, 1895.

H. W. CHILDS, Attorney General.

123

#### LANDS.

**GRANTS—SELECTIONS—**Certain legislation relative to a grant to the Minneapolis & St. Cloud Railway Company considered and held to justify the execution of a deed of conveyance of lands by the governor to that company.

His Excellency Knute Nelson, Governor,

ATTORNEY GENERAL'S OFFICE.

Sir: In your communication of the first inst. you call my attention to a deed presented to you by the state auditor for your signature, conveying to the Minneapolis & St. Cloud Railway Company a list of lands acquired by the state under and pursuant to the act of congress of March 12, 1860, known as the swamp land grant, and requesting me to examine into the matter of such conveyance, and to advise you, in substance, whether it is proper for the state to make a selection of lands for the said company, the time within which such selections should be made, the form of conveyance to be used, and when the same should be executed.

I have the honor to advise you in reply to your inquiries, that the law clearly confers upon state authorities the right of selection of swamp lands to fill the quota of the said company.

By chapter 3 of the Special Laws of Minnesota of 1865, a grant of swamp lands was made to the said company, lying within odd numbered sections in the several counties through or into which the said road might be constructed, not exceeding four sections per mile of said road upon the terms and conditions prescribed in the said act. It was further provided there that, in case of deficiencies in any of the counties through which the road should run, the said company was authorized to select lands to supply such deficiencies in any of the several land districts through or into which the road should pass, lying within odd numbered sections.

By chapter 56, Special Laws 1869, said chapter 3 was so amended as to grant to the said company "a grant of swamp lands belonging to or that may hereafter belong to the State of Minnesota not otherwise granted, equal to ten full sections for each mile of the said road; provided, that this grant of lands shall not prejudice or affect the rights of any other railroad com-

pany, any asylum, charitable institution or school, to any lands heretofore granted." It was furthermore provided therein that "whenever any ten consecutive miles of the said railroad shall be completed and ready for rolling stock, it shall be the duty of the governor to execute on behalf of the state a deed of conveyance to the said company, the full quota of lands for the portion of said road so completed."

In the case of Minneapolis & St. Cloud Ry. Co. vs. Duluth & Winnipeg Ry. Co. 45 Minn. 104, the supreme court of this state had under consideration the legislation hereinbefore referred to. Referring to the act of 1869 in question, the court expressed itself in the following manner:

"That act is a grant of ten sections to the mile out of any swamp lands then belonging to, or that might thereafter belong to, the state, without any limitations or restrictions as to sections or locality. Such a grant being one of certain quantity out of a larger quantity, the land is what is termed in land grant law, a 'float.' It will be observed that the act is silent as to who shall make the selection of the land. There are two rules of law applicable to such a grant that have an important bearing on the result in this case. The first is, that the right of selecting the lands to fill the grant not being given to the grantee, belongs to the state. It can, so far as plaintiff's rights are concerned, fill a grant out of any swamp lands in the state. The second is, that such a grant does not tie up all the swamp lands in the state until the grant is actually filled. Notwithstanding the grant to plaintiff (Minneapolis & St. Cloud Ry. Co.), the state could still dispose of any of its swamp lands and give perfect title to them, provided only that it retained enough to fill plaintiff's grant."

It is therefore obvious not only that selections of lands for the said company may be made by the state; but that it has always been within the power of the state to make selections and to convey the same to the said company as fast as earned.

Your attention is further called to the provisions of chapter 62, General Laws 1893, an act designed to enforce an early selection of swamp lands by railroad companies enjoying grants from the state. It may be questioned, however, whether the provisions of the last named act apply to the grantee named in the deed of conveyance with which you have been presented. The act in terms applies to "railroad companies within the state to which swamp lands have been granted by the State of Minnesota, and which by the terms of such grant are entitled to make selections of swamp lands and receive patents therefor."

Such companies are required to make selections and file lists of the same in the office of the state land commissioner within two years from March 24, 1893. There is, of course, force to the view that inasmuch as selections must be made by the state to fill the quota of the St. Cloud company, the selection should be made with reasonable dispatch; all the more so as the grant to such company is prior to the grants under which other companies claim rights of selection.

It appears from the records of the office of the state land commissioner that the Minneapolis & St. Cloud Railway Company is now entitled to 273,565.94 acres. The deed in question conveys only 271,565.94 acres, which, if executed, will leave a residue to the credit of the said company of 2,000 acres.

The only reasonable construction I am able to place upon section 2 of said chapter 56 is that it implies a selection and conveyance of swamp lands to the company therein named as fast as the lands were earned by the said company. You will note that it is therein expressly provided that it is made the duty of the governor to execute a deed of conveyance to the said company whenever any ten consecutive miles of the railroad shall have been completed and ready for the rolling stock.

In this connection it may well be urged that chapter 62, General Laws 1893, evinces a policy on the part of the state to close all such grants without unreasonable delay.

H. W. CHILDS, Attorney General.

Oct. 27, 1894.



**GRANT TO THE DULUTH & IRON RANGE RAILROAD COMPANY—The rights of the Duluth & Iron Range Railroad Company to a deed for certain listed swamp lands held to be determined by the decision of the supreme court of Minnesota cited in the opinion.**

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: In your communication of the 21st ult. you call attention to the fact that the Duluth & Iron Range Railroad Company has applied to the state for a deed embracing a list of swamp lands under Session Laws 1875, chapter 54, and request the views of this office touching your duty in relation thereto.

The general subject of your inquiry was considered by me in a communication transmitted to the state senate under date of April 7, 1893, in response to a resolution of that body. I then felt called upon, in concluding that communication, to express myself as follows:

"In view of the foregoing recital of facts it may well be doubted whether the court will now question the action of the executive department. (State vs. Bailey, 19 Ind. 452.) I recognize the importance of the questions submitted, and acknowledge that very strong considerations may be urged in support of the position that the said company is entitled to no grant whatever. The question should receive more attention than I have been enabled to give it in the short time afforded since the adoption of your resolution."

The subject being one of great importance, both to public and private interests, I have since the receipt of your communication given it a much more thorough examination than it was possible for me to do on the former occasion.

Your familiarity with the legislation bearing upon the subject relieves me of the necessity of more than an incidental reference thereto. Obviously, the question must be determined by the legal effect of that legislation, together with the amendment to the Constitution in 1881, and the action of the executive department in approving the construction of the road.

I find no escape from the view that the question was, in the main, determined by the decision reached in the case of the Minneapolis & St. Cloud Ry. Co. vs. Duluth & Winnipeg R. R. Co., Deft., and Duluth & Iron Range R. R. Co., Intervenor, 45 Minn. 104.

All questions material to the present inquiry were there considered. This is all the more apparent from an analysis of that decision. The three railroad companies above named had each laid claim to the same forty-acre tract of land. The first relied upon its grant in 1865 (S. L., c. 3), amended in 1869 (S. L., c. 56); the second upon its grant in 1875 (S. L., c. 54) and subsequent amendments (S. L., 1876, c. 241; 1883, c. 69); the third upon the original grant to the second and the act passed in 1878 (S. L., c. 246), designed to transfer to it, "in case of forfeiture," the grant conferred upon the second. Each of the three roads had received a conveyance of the said forty-acre tract, in order to afford an opportunity to secure an adjudication of the conflicting claims of the several companies by an appropriate action in court. The decision established the following facts:

1. That the Duluth & Winnipeg Railroad Company had no grant.
2. That the Minneapolis & St. Cloud Railroad Company and the Duluth & Iron Range Railroad Company, respectively, had valid grants.
3. That the Duluth & Iron Range Railroad Company was the owner of the tract in question, because the tract was situate in St. Louis county wherein that company had the right of prior selection, and in view of the findings of the lower court, the right of exclusive selection.

But this result was possible, so far as the Iron Range Company was concerned, only by a determination that it had earned its grant by a compliance with statutory requirements. In the contest between that company and the Minneapolis & St. Cloud Company, it was absolutely essential to the success of the former that it have earned its grant. Failure in that



respect must necessarily have resulted in its loss of title to the said tract and judgment in favor of the other company. Is there any other rational conclusion? Bearing these facts in mind, we perceive the force of the language of the court in its decision. After reaffirming the well-settled principle that a grant is not forfeited by mere default of the grantee in the conditions thereof, it says:

"The intervenor was not in default in any of the conditions of its grant in March, 1878, or for nearly a year afterwards. In 1879 it did default, not having, as the court finds, located its line, or filed a map of it, until the spring of 1882. But the state has never declared or asserted any forfeiture, either by legislative act or by judicial proceedings, and in the meantime the intervenor has gone on and earned its grant by the construction of its road, so that it is now beyond the power of the state to declare a forfeiture. \* \* \* We turn now to the grant of the intervenor. It does not claim anything (and it is not necessary that it should), under the act of March 10, 1885, which was enacted after the adoption of the constitutional amendment of 1881 relating to the disposition of swamp lands. It rests its claim wholly on the original grant of 1875."

An examination of the exhaustive briefs of the able counsel who represented the respective interests in that action, discloses that every phase of the several questions involved was carefully considered. It is especially true as to the effect of the constitutional amendment of 1881 and of the adoption of the route over which the line of the Duluth & Iron Range Company was finally constructed. Thus, on the one hand the amendment of 1881 in relation to swamp lands was there assailed as being in conflict with the constitution and the acts of congress upon the subject; and, on the other hand, it was objected that as there had been no previous declaration of forfeiture, the question was, in no respect, affected by that amendment. Much space was likewise devoted in the printed briefs to the question of compliance with the statute in the final selection of the route by the Iron Range company. Certainly, therefore, if the court did not deem it necessary to dwell at length upon either of these questions in its decision, it does not arise from the oversight or the neglect of counsel. It must be presumed that the court, impressed with the knowledge of the great interests at stake, reached the conclusion, only after due reflection and consideration, that the grant to the intervenor had not been invalidated either by a constitutional forfeiture or an abandonment of the route prescribed by the legislature, or otherwise.

The state, to be sure, was not a party to that action, and its rights are not barred thereby. Unquestionably, it enjoys the right to contest in court the validity of the grant. If it shall determine to do this, I am aware of no legal impediment to an investigation into every material question as fully as though the aforesaid action had not been tried. But an action differing from another only in respect to one of the parties thereto, the two being identical as to their material facts, cannot be distinguished from the other in the application of legal principles. Hence, the right of the state to litigate the question of the validity of the grant is, at best, a barren one, unless the state is in position to produce competent evidence in support of a controlling fact not presented to the court in the other action. Does such fact exist?

It is said that the company has abandoned the route prescribed by the legislature, and has not therefore earned its grant. There is seeming force to this view. In the absence of evidence to the contrary it is difficult to perceive how the line actually constructed via Two Harbors can be deemed the shortest and most feasible route between Duluth and the city of Tower. It certainly exceeds, by several miles, a direct line between those points; but the statute does not, of course, require the road to be constructed over a direct line, if that is not the most feasible one. The determination of the question of a compliance with the statute in the construction of the road was provided for in the very act under which the company claims its grant. Three commissioners were to be appointed by the governor, who were vested with full power to examine and report to him. The law in this respect was complied with. The commissioners reported to the governor that the road constructed pursuant to the granting act was built in

obedience to its terms. The law is apparently well settled that where authority has been confided to a special tribunal to hear and determine a given matter, the decision of that tribunal, within the scope of its authority, is conclusive upon all. (13 Wal. 83; 25 Wheat. 30.) But this precise question, as already stated, was involved in the other action, and it can no longer avail the state, unless it may be shown that the location or construction of the road has been attended with fraud, or a gross mistake of facts. It is evident to my mind that if the line of the company's road as now existing is a manifest and gross departure from the one contemplated by the granting act, the rights of the state cannot be lost by the action of its administrative officers in the acceptance of that road. But we must treat the question in the line of common sense. It is not a question whether another road might, by skillful engineering, be constructed a few miles shorter; but whether the present road has, in good faith, been built in substantial compliance with the law. That the legislature intended to bestow the grant, there is no question. In the construction of a railroad between given points, many practical questions are encountered; and especially so when the road is to traverse a broken and hilly territory abounding in lakes and water courses. Prominent among such is that of gradients. A detour of a considerable distance is often justified in securing more economical grades. In determining what is the most feasible route between Duluth and Tower, this question cannot justly be eliminated, and others might easily be suggested. The term "feasible" as employed in the statute must receive a reasonable construction—such construction as comports with the significance attaching to it in the connection in which it is there used. It is in such a view of the question that you are to ascertain whether the company has built its road in compliance with the statute under which it claims its grant.

This brings me to another phase of the question. The constitutional amendment of 1881 (art. 8, sec. 2) is prohibitive of further alienation of swamp lands in aid of railroads. The Duluth & Iron Range Company must look to the law of 1875 for its grant. Neither the law of 1883 or that of 1885 could operate to enlarge its grant by a single acre.

In my former communication upon the subject I said, in substance, that in the absence of a determination of the question of appropriate location of route by actual survey, "it must be held that the most direct route between termini is the most feasible one." But I am unable to longer adhere to such a rule; although plausible, it is not logical. The road constructed must be declared to be, or not to be, the "shortest and most feasible" one. If it fulfills the conditions of the grant in this respect, it is clearly entitled to acreage upon the basis of its actual mileage between its termini. If it has not fulfilled those conditions, it is entitled to nothing. There is no middle ground.

But how is this question to be determined? If the legislature had intended to be nicely exacting with this grantee, the statute would have made more adequate provisions for the determination of the question than was actually done. The very terms of the statute negative an intention that the route should be tested by surveys conducted on the part of the state. It is the company, not the state, that "shall cause a survey of the line of said road to be made and file a map of the same with the secretary of state." Furthermore, it is provided that in pursuance of the filing of the map, "all of the swamp lands belonging to the state for ten miles on each side of the line of said road shall be withdrawn from sale for the purposes contemplated in this act." And moreover, it became incumbent upon the governor, when notified by the company of the completion of each and every ten miles of the road, to appoint commissioners to ascertain and report whether the road had been constructed "in a good and substantial manner as contemplated" by law. The map of survey was filed, the governor notified, commissioners appointed, a favorable report made, and successive governors have since conveyed large quantities of lands to the company. Had the map filed evidenced so wide a deviation from the contemplated route as to cause a presumption that the law had not been complied with, the governor would have been justified in declining to recog-

nize the demands of the company. (St. Paul & Pac. Ry. Co. vs. N. P. Ry. Co. 139 U. S. 13.) The action of preceding administrations is demonstrative of their judgment in this respect.

With the policy of the state in thus disposing of its swamp lands administrative officers have nothing to do. They may deprecate its folly in such regard, but if the grant is valid, they are powerless to afford a remedy or impair the rights thereby secured. The legislature of 1875 exercised its constitutional right in bestowing a valuable grant upon the Duluth & Iron Range Railroad Company. The court has adjudged the grant a valid one and that it has been earned by the company.

You are therefore advised that in view of the facts as presented to me, it is your duty to certify the list in question to the governor.

H. W. CHILDS, Attorney General.

July 22, 1895.

125

**INTEREST**—Interest should be charged upon the certificates issued by the land commissioner at the rate of five per cent from the date of the indorsement thereon.

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: I beg to acknowledge receipt of your communication of the 11th inst., in which, calling attention to the provisions of General Laws 1885, chapter 201, section 1, and General Laws 1893, chapter 106, you state that application has been made to you "for a patent on a land certificate on which the interest has been reduced" under the first named law, and inquire whether you "should charge the holder of the certificate the two per cent per annum from date of reduction of interest on his certificate to the present time to the date of the passage of the act of 1893, or if the latter law wipes out the two per cent additional on all contracts on which the interest has been reduced."

The purpose of the law of 1885 cited by you was to reduce the rate of interest from seven to five per cent on such contracts only as should receive the indorsements of the land commissioner as therein provided. The effect of the indorsement, properly made, was to reduce the rate of interest, as per contract between the estate and the holder of the certificate, to five per cent; and thereafter neither of the parties, without the consent of the other, could change the rate as so agreed upon, so long as the conditions imposed should be observed. Chapter 106, General Laws 1893, is in recognition of this view, as it expressly provides "that all outstanding contracts bearing seven per cent, or contracts on which the interest has been reduced to five per cent under certain conditions, shall hereafter draw interest at the rate of five per cent without any restrictions whatever."

So far as a certificate bearing such indorsement is concerned, the only effect of the law of 1893 is to remove the conditions or restrictions imposed by the law of 1885.

You are therefore advised that interest should be charged against the certificate at the rate of five per cent from the date of the indorsement thereon.

H. W. CHILDS, Attorney General.

Jan. 14, 1895.

126

**SIOUX CITY & ST. PAUL GRANT**—Sioux City & St. Paul Company deemed not entitled to a conveyance of certain lands.

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: I am in receipt of your communication of the 22d inst., touching the matter of certification to the governor of certain lands claimed by both



the St. Paul & Sioux City Railroad Company and the Sioux City & St. Paul Railroad Company.

It appears from the facts presented that the said land, together with other lands, were conveyed to the St. Paul & Sioux City Railroad Company through inadvertance. As soon as the attention of the officers of that company had been called to the fact, a deed of relinquishment was executed, on the 16th day of December, 1876, reconveying to the government the title thus erroneously acquired. Thereupon the selection was made in the name of the St. Paul & Sioux City Railroad Company of another tract in lieu of the one thus relinquished. The Sioux City & St. Paul Company now claim title to the land by reason of an agreement entered into pursuant to authority conferred by the legislature of this state by and between that company and the St. Paul & Sioux City Company. I am advised that your department has heretofore acted upon the assumption that the Sioux City & St. Paul Company are entitled to a direct conveyance of such lands.

Such practice was, in my judgment, an improper one, as the state should have conveyed to the beneficiary named in the grant and left the contracting parties to adjust the rights between themselves. Now that the two companies are not agreed as to whom a conveyance should be made by the governor, it is my opinion that certification should be made in favor of the St. Paul & Sioux City Company rather than the other company. So long as the two companies are at variance as to whom the tract belongs, it is obvious that their conflicting claims can be determined only by the adjudication of the courts. The course above recommended will impair no rights and leaves the complaining party to seek an enforcement of his rights by aid of the courts.

Nov. 26, 1895.

H. W. CHILDS, Attorney General.

127

#### PUBLIC PRINTING.

**CONTRACT — STATE HORTICULTURAL SOCIETY — General Laws 1895, chapter 358, considered as affecting the authority of the president of the Minnesota State Horticultural Society in the matter of printing the report of that society.**

ATTORNEY GENERAL'S OFFICE.

Hon. Albert Berg, Secretary of State,

Sir: In your communication of the 9th inst. you state that on July 20, 1894, the commissioners of public printing awarded to Walter J. Driscoll the contract for doing all the public printing of the third class for the State of Minnesota for the term of one year from the first day of August, 1894, pursuant to General Statutes 1878, chapter 5; that at the time said contract was made, printing of the third class included the report of the Minnesota State Horticultural Society; that the said report consists of twelve parts; that Mr. Driscoll now demands the printing thereof under his said contract, but that Messrs. Harrison & Smith likewise demand it under an arrangement made by them with the president of the said society "but without any contract or order from the commissioners of public printing."

You present for my opinion the following questions:

1. Does House File No. 356 have the effect of taking the report of the Minnesota State Horticultural Society for the year 1894 out of Mr. Driscoll's contract?
2. Does House File No. 356 confer upon the president of the Minnesota State Horticultural Society, or upon any person other than the commissioners of public printing, the authority to make a special contract for printing the report of the Minnesota State Horticultural Society?
3. Is not the authority conferred upon the president of the Minnesota State Horticultural Society by said act limited to the approval or disapproval of a special contract made by the commissioners of public printing?



1. Under the contract made with Mr. Driscoll that gentleman became entitled to print all matters belonging to the third class as contemplated by General Statutes 1878, chapter 5, section 2. As the law stood at the time the contract was entered into the said report clearly belonged to the third class. It was a report already provided for by law and must have entered into the consideration of the contracting parties, and, it is fair to assume, must have influenced Mr. Driscoll in determining the amount of his bid. It is undoubtedly true that the legislature possessed the power to recede from the policy of printing that report, and had it adopted such course the contractee would have had no just ground of complaint. For this reason I have somewhat inclined to the view that the power also resided in the legislature to remove the report from that class regardless of the contract, and provide for the printing thereof by another contract. But this view is overcome by other considerations. It should not be held, if it can be avoided, that the state undertook by the law of 1895 to do so gross an injustice as is contended for on behalf of the society. It is not a contract between citizens contracting with reference to the terms of the existing law, but a contract between the state and one of its citizens. There is, therefore, a high moral obligation on the part of the state to keep faith with the one with whom it contracts. It is more just to hold that it was not the intention of the legislature to impair the said existing contract, but that the law should become operative upon the expiration thereof. Your first question is answered in the negative.

2. The section above named has mainly to do with the classification of printing. Section 1 of the same chapter creates the commissioners of public printing, whose powers and duties are elsewhere defined and prescribed in subsequent sections. The amendatory act of 1895 contemplates that the contract for the printing of the said report shall be made by the said commissioners "with the approval of the president of said society." With this modification, your second question is answered in the negative.

3. It follows from what has been said in reply to your previous questions, that the third should be answered in the affirmative.

H. W. CHILDS, Attorney General.

May 10, 1895.

128

**GEOLOGICAL SURVEY—Certain questions determined touching the appropriations for the purpose of printing and binding volumes two and three of the state geological survey.**

ATTORNEY GENERAL'S OFFICE.

Hon. Albert Berg, Secretary of State,

Sir: In your communication of the 4th inst. you ask, among others, the following questions:

How much money is appropriated and can be expended for the purpose of printing and binding volumes 2 and 3 of the state geological survey?

Does the printing of the said volumes come within the third class of printing mentioned and provided for in section 2, chapter 5, General Statutes 1878?

What is the meaning of the word "volume" as employed in General Laws 1885, chapter 228?

Is there any law authorizing payment of expense of printing and binding catalogue of books in state law library, and if so, out of what funds is the same payable?

The present legislature passed an act to provide for the publication of the proceedings of the Minnesota Educational Association, but made no appropriation for payment of same. Out of what funds shall the payment of this publication be made?

By General Laws 1885, chapter 228, section 5, an appropriation is made for defraying the expenses incident to the printing and publication of the volumes of the final report of the geological and natural history survey of the state, whatever those expenses might be, but by chapter 276, section 1,

item 25, the sum of \$12,000 is appropriated for the printing and binding and purchasing paper for volumes 2 and 3 of the final report of such survey, "to be expended under the direction of commissioners of printing and included in contract for the third class of public printing." This specific appropriation must be deemed a limitation upon section 5 of chapter 228, and thus limits the moneys available for the printing, binding and purchasing paper for volumes 2 and 3. If any other moneys have been used for such purpose it was, in my judgment, wholly without warrant of law, and if further moneys are found requisite to complete the publication of those volumes, it must be sought through an appropriation by the legislature.

In view of the language employed in the twenty-fifth item of chapter 276, the printing and binding and purchasing paper for the said volumes 2 and 3 falls within the third class of public printing; otherwise they would, in my opinion, fall within the fifth class.

The word "volume" as employed in General Laws 1885, chapter 228, must be deemed to mean a single book as contained between its two covers.

I am aware of no appropriation save the one made for the contingent expenses of the state library available for the purpose of binding and printing a catalogue of the books contained in the said library.

The publication of the proceedings of the Minnesota Educational Association may be printed as fifth-class matter under General Statutes 1878, chapter 5, section 1. It falls within the purview of the words "all printing not included in the foregoing classes."

March 13, 1895.

H. W. CHILDS, Attorney General.

129

**DEPUTY STATE TREASURER—RECEIVING BIDS**—The deputy state treasurer has no authority to represent the state treasurer in awarding bids for state printing. The board was authorized in a stated case to receive bids after the hour named in the advertisement.

ATTORNEY GENERAL'S OFFICE.

Hon. Albert Berg, Secretary of State,

Sir: You submit, on behalf of the commissioners of printing, the following statement of facts:

At a meeting of the state printing commission held this day at 11 a. m. in the secretary of state's office, there were present Commissioners Dunn and Berg and Deputy State Treasurer Ackermann, acting for Commissioner Koerner. At 11:15 a. m. three unknown bids were offered, and, upon motion of one of the commissioners, seconded by acting Commissioner Ackermann, said three bids were received. Mr. Driscoll, a bidder and on behalf of the other bidders, objected to the reception of these bids, as they were received after the hour named in the advertisement. A vote was taken, one commissioner and Deputy State Treasurer Ackermann voting in the affirmative, and one commissioner in the negative.

You ask the following questions:

1. Had Deputy State Treasurer Ackermann authority to act and vote in said meeting, and could State Treasurer Koerner delegate him to cast his vote?

2. Could the commission receive these three bids at 11:15 a. m. of this day, when advertisement read 11 a. m.?

The statutes provide that "the commissioners of printing shall \* \* \* give notice \* \* \* for thirty days that sealed proposals will be received at the office of the secretary of state at a day specified in the said notice, for the execution of the several classes of state printing." (G. S. 1894, sec. 261.)

"The commissioners of printing or any two of them shall, within two days after the expiration of the time for receiving proposals as aforesaid, proceed to open in public all such proposals by them received, and they

shall award the contract for each class of printing to the lowest bidder therefor." (Id., sec. 262.)

A strict construction of the foregoing provisions of law would be to the effect that all bids shall be filed with the secretary of state prior to the day named in the advertisement, whereupon the commissioners are entitled to two days after the expiration of the time for receiving such bids in which to open the same and award contracts for the several classes of printing. The advertisement pursuant to which the several bids in question were received, recites that the proposals "shall be addressed to the secretary of state and will be opened on Tuesday, the second day of June, 1896."

I fail to discover therein any other provision limiting the time within which bids may be filed as aforesaid. Inasmuch as the provisions of statute above quoted are designed simply with a view to secure system and uniformity in awarding contracts and to protect the public interests, it is, in my judgment, improper to place so strict a construction upon them as that above indicated. Statutes of such a character are to be deemed directory rather than mandatory in their provisions. It is therefore proper for the commission to receive bids up to the time the commission shall meet to open them in public. The fact that the statute has prescribed a period of two days in which the bids may be opened and awards made implies that the commission shall have that time in which to consider the merits of the several proposals, but action upon them need not be taken immediately upon the opening of the bids.

I am, therefore, of the opinion the board acted properly in receiving bids after the hour named in the advertisement.

An examination of the several provisions of statute relative to the office of deputy state treasurer leads me to the view that he is not vested with requisite authority to act in such a matter in the place of the state treasurer.

I would therefore recommend that final action upon the question be deferred until the state treasurer may be able to cooperate with the other members of the commission.

H. W. CHILDS, Attorney General.

June 2, 1896.

130

## RAILROAD AND WAREHOUSE COMMISSION.

**GROSS EARNINGS**—Green Bay, Winona & St. Paul Railway Company is required to report to the commission its receipt of gross earnings upon business done in the State of Minnesota.

### ATTORNEY GENERAL'S OFFICE.

Hon. William Liggett, Chairman Railroad and Warehouse Commission,

Sir: In your communication of the 22d inst. you submit for my consideration the question whether the Green Bay, Winona & St. Paul Railway Company comes within the purview of the statute of this state requiring railway companies to file with your commission reports of gross earnings.

From the communication of Mr. F. W. Froemke, the auditor and cashier of the said company, containing a statement of facts which you deem correct, it appears that the company does not own any railroad or part of railroad in this state; that it is running trains over the bridge of the Winona Bridge Railway Company, part of which structure lies within the State of Minnesota, and for the use of which an annual rental of \$6,000 is paid. that it is using the terminals of the Chicago, Burlington & Northern Railway Company in the city of Winona, for which service it pays an annual rental of \$5,000.

Mr. Froemke urges the following considerations:

"3. Inasmuch as the Green Bay, Winona & St. Paul Railroad Company pays about \$12,000 rentals per annum to the Winona Bridge Railway Company and to the Chicago, Burlington & Northern Railway Company, for the use of bridge and terminals, which increases the gross earnings of the latter two companies to that amount, on which they pay taxes to the State of Minnesota, the Green Bay Road in this way indirectly pays its taxes to your



state, and perhaps more than those two companies, over the bridge and short piece of track in Minnesota.

"4. In consideration of the fact that the State of Minnesota collects its taxes from the bridge company for that part of the bridge on the Minnesota side and also from the Chicago, Burlington & Northern Railroad Company for that piece of track between the bridge and the depot at Winona, it can, in my opinion, not justly compel a third company to pay taxes on same property, which said third company is using under a contract of trackage right, for which it pays heavy rentals and by doing so, as stated herein above, has already paid its taxes to your state indirectly."

I am unable to subscribe to the position assumed by Mr. Froemke.

Would it be contended that his company owed no duty under the statute it it employed by lease or otherwise, all the lines of the Chicago, Burlington & Northern Company in this state, and carried on therein an extensive business? The rental would not certainly be in any wise commensurate with the gross receipts of the lessee. If the question is to be answered in the affirmative, it follows that the gross receipts reported by the lessee would fall far short of the gross receipts for business transacted over its lines. It is the manifest purpose of the law that the percentage tax shall be based upon the gross receipts of the whole volume of business done over the lines of a given company. Whether the business is done by the owner of the lines or its lessee, it must be reported and a percentage tax paid thereon by one or the other of the companies. In this connection your attention is called to General Laws 1887, chapter 10, section 1, subdivision B, which is as follows:

"The term railroad as used in this act shall include all bridges or ferries used or operated in connection with any railroad, and also all the road in use by any corporation operating a railroad, whether owned or operated under a contract, agreement or lease; and the term transportation shall include all instrumentalities of shipment or carriage."

Furthermore, your attention is called to General Laws 1887, chapter 11, section 1, which provides as follows:

"Any railroad company owning or operating, or which may hereafter own or operate, any line or lines of railroad in this state, which has not accepted and become subsect to sections 1 and 2 of chapter 111 of the Special Laws of 1873 relative to taxation or some special act or acts relating to taxation of the company accepting the same, shall become liable to pay and shall pay a percentage of its gross earnings in lieu of all other taxes in accordance with the provisions of the chapter hereinbefore referred to."

Your attention is further called to General Statutes 1894, section 1678, wherein the duty is imposed upon a railroad corporation owning or operating a railroad in this state, to make to the commission a true and just return of the gross earnings of its road or roads within the state for and during the year ending the last day of December next preceding.

You are therefore advised that in my opinion said company is required to report to your commission its receipt of gross earnings upon business done in the State of Minnesota.

Jan. 27, 1896.

H. W. CHILDS, Attorney General.

131

**REMOVAL OF STATION**—Where a railroad station is once established, the commission has jurisdiction to determine whether it shall be abandoned.

ATTORNEY GENERAL'S OFFICE.

Hon. A. K. Teisberg, Secretary Railroad and Warehouse Commission,

Sir: Calling attention to the communication of Mr. Andrew Gillberg of Kerrick in relation to the contemplated removal of the station said to be established at the above named place, you state that "the commission would like to be advised by you if they have any jurisdiction in this matter or if there is any law applicable to the case."

It does not appear from the communication of Mr. Gillberg what the population of Kerrick is, his only statement in this respect being as follows:



"In Kerrick we have a landing place for our imports and exports; have there a good plant of stores for trade; two saw-mills, postoffice, etc., and provided with three different legally laid out highways leading into Kerrick."

The statute does not in express terms confer upon your commission authority to determine where stations shall be established by a common carrier, but I am of the opinion that it may fairly be implied from the provisions of General Statutes 1894, chapter 6, section 388. Where stations are established by the company it is required to provide them with suitable waiting rooms (Id. 2702), and where a station is maintained in a village having a population in excess of 250 it may be required to provide suitable platforms thereat.

A station once established, the commission has jurisdiction to determine whether it shall be abandoned, and I am therefore of the opinion that it may properly entertain a petition in which complaint is made that a common carrier threatens to remove an established station.

H. W. CHILDS, Attorney General.

Aug. 5, 1895.

132

## ROADS AND BRIDGES.

**TOWN LINE ROADS**—The statute does not contemplate that one township shall work the portion of a highway lying within its boundaries and the other work the remainder thereof, but that a given section of such highway shall be allotted to one township and another section to the other township.

ATTORNEY GENERAL'S OFFICE.

Mr. F. P. Broadbent,

Sir: I am aware of no authority for laying out a highway upon town lines, except in the manner prescribed in the General Statutes. It is there contemplated that a road laid upon such a line shall be in all respects like a general road, but is to be laid out by the concurrent action of the authorities of the two townships. When such road is constructed, it is to be divided into road districts in such manner that the labor and expense of opening, working, and keeping in repair the same shall be as equal as may be. This does not contemplate that one township shall work the portion of the highway lying within its boundaries, and the other work the remainder thereof, but that a given section of such highway, whether a mile or more in extent, shall be allotted to one township and another section to the other township, and thereupon the township to which a given allotment has been made will work all of the highway lying on both sides of the line embraced within the district.

Until the roadway has in fact been opened and has thereby become subject to be traveled, there is no legal impediment in the way of the owner of the lands lying along section lines fencing across such a line.

H. W. CHILDS, Attorney General.

June 8, 1896.

133

**BRIDGES**—Where bridges have been built wholly or in part from moneys appropriated by the state, the expense of maintaining the same falls upon the municipalities in which they are erected.

ATTORNEY GENERAL'S OFFICE.

Hon. W. F. Barker, County Attorney,

Sir: Bridges constitute portions of the highways which lead to them, and are county or township charges according to the character of the highway which they were constructed to serve. The fact that either municipality has been the recipient of aid from the state in constructing a particular bridge does not affect the question. In the absence of express language in the appropriating act evincing a different policy, an appropriation for such pur-

pose is merely a bounty and implies no further obligation on the part of the state.

It follows from the foregoing that the expenses of future repairs must fall upon the municipality which maintains the highway upon which the bridge is constructed.

March 4, 1895.

H. W. CHILDS, Attorney General.

134

**DESCRIPTION**—Not necessary to describe in extenso the course and termini of a main road in which a change is effected.

Mr. H. J. Collins, County Auditor,

ATTORNEY GENERAL'S OFFICE.

Sir: Where it is designed to change a county road in some respect it is unnecessary to describe in *extenso* the course and termini of the main road in which the change is to occur. It will be a sufficient compliance with the statute if that portion of the road to be changed is definitely stated and the extent and character of the change, stating, of course, with particularity the course of the new road. While cases may arise where a proposed change can be stated with entire accuracy without an actual survey, it is rarely safe to dispense with it. The proceeding necessarily results in acquiring title to real estate, either by purchase or condemnation, wherefor the description should be accurate so that it may readily be ascertained what territory is affected.

July 11, 1895.

H. W. CHILDS, Attorney General.

135

# STATE BOARD OF MEDICAL EXAMINERS.

**EXEMPTS.**—The mere filing of an affidavit that a person prescribed at one or more times or places, medicines, would not be sufficient to secure exemption to him from the operation of the act. He should state in his affidavit the places in which he was established as a physician and the period of time he was so established.

ATTORNEY GENERAL'S OFFICE.

Hon. Thomas McDavitt, Secretary State Board of Medical Examiners,

Sir: Calling attention to the act regulating the practice of medicine in this state, you inquire what action by the state board of medical examiners should be taken in reference to exempts, and particularly inquire whether the board is authorized to place upon the exempt list a person who files an affidavit that he has practiced medicine previous to the passage of the law of 1887, provided he could not license himself under the law of 1883, and whether the person who had prescribed previous to the passage of the said law, without having done such prescribing as a physician, could by the mere filing of an affidavit, compel the board to receive such affidavit as coming from a physician at that time, and thereby the affiant be authorized to practice medicine in this state.

The statute provides that "it shall be unlawful for any person to practice medicine in this state without a license from said board, or without having filed with the secretary of said board an affidavit setting forth the times and places in which he or she has practiced medicine within the state prior to the passage of this law."

The foregoing provision, read in connection with the remainder of the act from which it is taken, is designed to exempt such persons as had in fact prior to the enactment thereof been practicing medicine in this state as physicians. The mere filing of an affidavit that a person prescribed at one or more times or places, medicines, would not be sufficient to secure exemption to

him from the operation of the act. He should state in his affidavit the places in which he was established as a physician, and the period of time he was so established. It certainly is not the meaning of the act that he should set forth in his affidavit, with particularity, all of the prescriptions which he may have given in the course of one or more years of practice. It is enough to know that the individual was in fact established as a physician engaged in the practice of his profession in one or more places for certain periods in the state prior to the passage of the act, in order to secure said exemption to him. The mere fact that he may, on one or more occasions, have administered medicine to sick or diseased persons would not be sufficient evidence that he was a practicing physician within the meaning of the act and thereby entitled to exemption.

H. W. CHILDS, Attorney General.

June 4, 1896.

136

### STATE INSTITUTIONS.

**PENITENTIARY—BREACH OF PARDON**—The rule is that where any condition is annexed to a pardon, the condition must be performed or the original sentence remains in full force and may be carried into effect.

ATTORNEY GENERAL'S OFFICE.

Hon. Henry Wolfer, Warden State Penitentiary,

Sir: Referring to the case of one Timothy Rowles, a convict recently returned to your institution because of a breach of the conditions of the pardon on which he had been previously released, Mr. O'Brien, at your request, raises the following question:

"What will be understood by 'the remainder of the time for which he was sentenced as aforesaid?' Shall he be received as a new prisoner, or shall he be taken up on our records on continuation of the first sentence?"

The rule is that where any condition is annexed to the pardon, the condition must be performed or the original sentence remains in full force and may be carried into effect. The authorities are not in accord in the application of the rule. I incline to the view that the better doctrine is announced in Massachusetts, where it is held that the time between the conditional pardon and subsequent arrest shall be taken to be a part of the term of sentence. (West's Case, 111 Mass. 443.) The opposing doctrine would render a prisoner subject to return even after the expiration of the original term of sentence. A sound public policy will not, in my judgment, countenance such a view of the law.

You are therefore advised that the prisoner should be released at the expiration of the original sentence, the period during which he was at liberty being deemed a part thereof.

H. W. CHILDS, Attorney General.

Aug. 5, 1895.

137

**STATE PRISON—CONTRACT**—Certain questions considered and answered touching the contract entered into by the board of prison managers.

ATTORNEY GENERAL'S OFFICE.

Hon. L. G. Powers and T. L. Schurmeier, Commissioners, etc.,

Gentlemen: I beg to acknowledge receipt of your communication of the 28th ult. in which you submit the following questions:

"Under the terms of the inclosed contract, can the board of prison managers limit the number of convicts furnished by them to the contractors to 200, or less, without making themselves liable for pecuniary damages?"

"If the commission authorized by section 8 of chapter 154 above referred to reports to the board of prison managers that 200 is ten per cent of the number of persons at present employed in the shoe industry in Minnesota, can



that board thereafter legally furnish more than that number of convicts to the contractors under the terms of chapter 154?"

"Are the findings of the commission authorized by chapter 154 final relative to the number of persons to be employed in any industry in the prison, such as the making of shoes, and if there are any legal limitations upon those findings, what are they?"

The provisions of the section to which you refer must be read in connection with those found in section 13, which provides:

"Any existing contracts for the labor of prisoners confined in the state prison or state reformatory, which by the terms thereof may be terminated by the warden, superintendent, or other chief officer thereof, or by the board of managers, or other governing board of said institutions, upon notice, shall be so terminated by the warden, superintendent, or chief officer thereof, or the board of managers or other governing board of said institution by giving within ninety days after the passage of this act, the notice provided for in such contracts, or as soon afterwards as the terms of the contract will allow; provided, such contracts shall not be terminated in such a manner as to make the state liable for damages on account thereof."

The contract, of which a copy has been submitted by you, covers a period of two years without provision for any termination thereof at a less period. It is therefore evident that it is saved from the contemplation of section 8, to the extent, at least, of the employment of 200 convicts.

By the terms of the contract the second party agrees to employ during the period of the two years therein named, at least 200 convicts, or such greater number as the prison authorities may furnish him. It is evident that it is not incumbent upon the prison authorities to furnish more than the above number under the contract. This being so, I see no valid reason why such authorities are not properly subject to the law of 1895 as to the number in excess of 200 which they may be disposed to supply, and you are advised accordingly.

While the foregoing is sufficiently responsive to your question, so far as the said contract is concerned, I understand you to call for my construction of section 8 for the future guidance of your commission.

In determining the number of convicts who may lawfully be employed in any single industry, the commission will act upon such evidence as will fairly apprise it of the number of persons actually engaged in the same industry in this state. Reports made by official authority, or otherwise, while properly receivable in evidence by it as bearing upon the question, will not necessarily be conclusive upon it; but the commission will be at liberty to obtain such other evidence as it may deem advisable.

Contracts for convict labor hereafter made will be subject to the law to which you call attention; and the determination of your commission as to the number of convicts which can lawfully be employed under such contracts will be conclusive upon the parties thereto.

The willful employment of a greater number of convicts under such contracts than is authorized by law will be a violation of law on the part of the public officials committing it, for which punishment has been provided. Moreover, such violation could be enjoined in a civil action.

Nov. 7, 1895.

H. W. CHILDS, Attorney General.

138

**STATE PENITENTIARY—TERM OF SENTENCE**—The term of sentence of a prisoner begins to run from the date of arrival at the penitentiary, when the sentence does not otherwise provide.

ATTORNEY GENERAL'S OFFICE.

Hon. Henry Wolfer, Warden State Penitentiary,

Sir: It appears that you have in custody a United States prisoner held pursuant to a sentence which fails to state when the term therein prescribed began to run. You now inquire whether such term began with the day on which the sentence was imposed or the day on which the incarceration in your institution began.



It was held by my predecessor, under date of Nov. 18, 1891, that a term of sentence begins to run from the date of arrival at the penitentiary, when the sentence does not otherwise provide. A similar holding was made by the attorney general of the United States on two occasions. While it may well be doubted whether such view is sustained by the weight of judicial authority, I feel bound to follow it. The following cases are decidedly the other way and would control my present action but for the holdings above named: 15 Fla. 576; 44 Mo. 279; 62 How. Pr. 412; 52 N. W. Rep. 577; 31 Cal. 619.

You are accordingly advised that the prisoner's term dates from the day of his reception into your custody under his commitment.

H. W. CHILDS, Attorney General.

May 7, 1895.

139

**MINNESOTA STATE TRAINING SCHOOL**—Where a furloughed ward is charged with a crime committed during the term of furlough, he is subject to trial therefor, notwithstanding previous and unexpired commitment.

ATTORNEY GENERAL'S OFFICE.

Hon. J. W. Brown, Superintendent Minnesota State Training School,

Sir: You state that, "on the 16th day of October, 1891, one Clarence Winch was placed in the custody of the state reform school. May 4, 1893, he was granted a furlough during good behavior by the board of managers. He was recently arrested on charge of larceny of a few yards of cloth and is now under indictment in St. Paul." You inquire whether the managers of your school are now authorized to demand his return, and if so, what is the proper procedure.

There is no authority by which you can reacquire custody of the paroled prisoner before his trial and conviction or acquittal for the crime for which he is now being held by the authorities of Ramsey county. They may properly claim that he is now subject to prosecution therefor before being returned to your institution. You should apprise those authorities of the fact that he was constructively in your custody at the time of the commission of such offense. The court will no doubt, impose a sentence, in case of conviction, to begin to run at the expiration of the period during which he would be subject to your jurisdiction. Unless such notice is given, the court, in ignorance of the former commitment, will doubtless impose a sentence which will run concurrently with the period of confinement in your institution. It would practically operate in rendering the sentence nugatory.

But whether or not the court shall deem such commitment at all controlling or deserving consideration in imposing the sentence upon the recent charge, you could not, with propriety, demand a surrender of the prisoner prior to his trial therefor.

I herewith return papers.

H. W. CHILDS, Attorney General.

March 9, 1896.

140

**REFORMATORY—ESCAPE**—Certain facts considered touching the escape of a convict committed to the state reformatory and his prosecution for such escape.

ATTORNEY GENERAL'S OFFICE.

Hon. William E. Lee, Superintendent Minnesota State Reformatory,

Sir: You state that in May, 1891, one Daily was received in your institution from Carlton county, committed for the crime of escape; that he was paroled Nov. 20, 1892, and almost immediately thereafter violated the same by flight and eluded arrest until the 9th ult., when he was returned to your institution.

It appears that the original offense for which he was indicted was grand larceny in the second degree, but I assume from your communication that he was not tried therefor, the prosecution for some reason preferring to prosecute him for the escape instead. The said Daily by his first escape committed a

felony pursuant to Penal Code, section 77, for which no punishment is anywhere especially prescribed. He was, however, subject to punishment therefor under Penal Code, section 12, to imprisonment in the state prison or the county jail for not more than seven years, or by a fine of not more than \$1,000, or by both.

The state reformatory law under which he was presumably committed to your institution General Laws 1887, chapter 208, section 11), provides that every sentence of a person thereto, whether for felony or misdemeanor, should be a general sentence, and the court is prohibited therein from fixing any limit or duration to such sentence. The term of imprisonment is to be fixed by the members of the reformatory, but shall not exceed "the maximum term provided by law for the crime for which the prisoner was convicted, and sentenced, nor be less than the minimum term provided by law."

It is obvious that it was within the power of the court to have sentenced said Daily to the state prison or the county jail for any term less than seven years. The minimum term must therefore, for the intents and purposes of the reformatory act, be deemed to be a single day, for while the minimum term is not expressly named in the statute, it may fairly be held that it is "provided by law" to be a single day. The maximum term is seven years.

The fact that Daily was indicted for grand larceny in the second degree is entitled to no consideration in determining the maximum punishment, as punishment can only be inflicted after conviction.

Dec. 3, 1895.

H. W. CHILDS, Attorney General.

141

**SCHOOL FOR FEEBLE-MINDED—JURISDICTION OVER INMATE**—The superintendent of school for the feeble-minded does not lose jurisdiction over an inmate by reason of his attaining his majority.

Hon. A. C. Rogers, M. D., Superintendent Minnesota School for Feeble-Minded, ATTORNEY GENERAL'S OFFICE.

Sir: The statute provides (General Statutes 1894, section 1951) that "every poor person who is unable to earn a livelihood in consequence of bodily infirmity, idiocy, lunacy or other cause, shall be supported by the father, grandfather, mother, children, grandchildren, brothers or sisters of such poor person if they are either of them of sufficient ability."

In the case of a feeble-minded person the obligation of the parent to support him is clearly imposed by the foregoing statute, and inasmuch as the law providing for the admission of such persons to your institution implies that the state shall assume the obligation thus imposed upon the parent in a proper case, I am of the opinion that you do not lose jurisdiction over such inmate by reason of his attaining majority.

Your question is therefore answered in the negative.

Oct. 5, 1895.

H. W. CHILDS, Attorney General.

142

**SCHOOL FOR FEEBLE-MINDED—RESIDENCE**—Where the parents of any inmate of the school for feeble-minded remove to another state, such inmate ceases to be a resident and is no longer entitled to the benefits of the institution.

Hon. A. C. Rogers, Superintendent Minnesota School for Feeble-Minded, ATTORNEY GENERAL'S OFFICE.

Sir: The residence of the child follows that of the parent; nor is the rule changed by the fact that the child has been admitted to your institution. The purpose of the statute regulating admissions to your institution is to provide proper care and instruction to the classes of persons therein named, who are residents of this state. When the parents of any inmate remove to another state, such inmate ceases to be a resident perforce of the act of the parent, and is no longer entitled to the benefits of the institution.

Oct. 1, 1895.

H. W. CHILDS, Attorney General.

## STATE OFFICERS.

**SECRETARY OF STATE—CENSUS STATISTICS—PUBLICATION**—The secretary of state is authorized to publish in sections the compilation of the census statistics taken pursuant to General Laws 1895, chapter 195.

ATTORNEY GENERAL'S OFFICE.

Hon. Albert Berg, Secretary of State,

Sir: You inquire, in effect, if you are authorized to print and publish in sections the compilation of the census statistics taken pursuant to General Laws 1895 (No. 12, Pop. Ed.) rather than await the time when you shall be enabled to publish the entire work.

While the literal terms of the statute are apparently at variance with publication in the manner first above named, they may fairly admit of the opposite view when read in the light of their manifest purposes. It is evident that a compilation of a reliable census is sought, and to that end provision is made against causes tending to impeach it. It is certainly desirable to secure the earliest possible publication of the compilation, and the statute must be deemed to contemplate it. When all of the census returns shall have been received by you, and the compilation thereof fully completed, it will be proper to cause the same to be printed and published in sections, or as an entirety, according as you may deem expedient. In either event, it will be a reasonable compliance with the requirements of law.

H. W. CHILDS, Attorney General.

Aug. 7, 1895.

**STATE AUDITOR'S WARRANT**—In disbursing moneys appropriated by law the responsibility rests upon the state auditor in determining to whom and for what amounts warrants shall be drawn, saving, of course, that they may not exceed in the aggregate the gross sum appropriated.

ATTORNEY GENERAL'S OFFICE.

Hon. August T. Koerner, State Treasurer,

Sir: In your communication of the 10th inst. you suggest that the state auditor draw his warrant upon you in favor of Mr. Woodbury of Anoka for the payment of the purchase price of lands selected as a site for the fourth insane hospital. You request to be advised whether you are required to pay the said warrant upon presentation to you, or may properly defer the payment thereof pending existing litigation relative to the validity of the action of the board in selecting a site.

In naming the executive officers of the state, among whom are the state auditor and state treasurer, the constitution employs the following language: "The further duties \* \* \* of such executive officers shall each be prescribed by law."

The constitution further provides, that "no money shall ever be paid out of the treasury of this state except in pursuance of an appropriation by law. (Art. 9, sec. 9.)

Looking to the statutes of the state regulative of the duties of the above named officers, we find that the state auditor is made the auditing officer of the state. "All accounts and claims against the state which are by law directed to be paid out of the treasury of the state shall be presented to the auditor, who shall examine and adjust the same, and issue warrants payable out of the state treasury for the sums which are found to be due from the state, specifying in the warrant the date of its issue and the name of the person to whom payable."

He is expected to make appropriate investigation into the facts relative to every claim which is presented to him, and in furtherance of his duties in such respect, and to guard the more effectually against error and misap-



propriation of the public funds, he is authorized to administer oaths and examine witnesses "in support of the justice of such accounts as are exhibited to him for liquidation."

The treasurer is required to "have charge of and safely keep all public moneys which are paid into the treasury and pay out the same as directed by law." He is required to "receive in payment of public debts warrants drawn by the auditor of state in conformity to law."

I have, I believe, thus briefly called attention to every provision of law applicable to your inquiry.

Where an appropriation has been made for a specific purpose, the expenditure whereof involves the determination of questions of fact, the auditor's warrant implies that he has performed his duty in such respect, and should be paid without question by the treasurer. In such a case the treasurer has no discretion, and must honor the warrant, as it has then been drawn "in conformity to law." If, on the other hand, a warrant is drawn for an object for which no appropriation has been made, or at a time when the appropriation is not available, the treasurer is in duty bound to refuse to pay it, as to pursue any other course would render him as culpable and liable as the auditing officer by whom the warrant was unlawfully drawn.

For the purpose of carrying out the provisions of General Laws 1895, chapter 157, an act relative to the selection of a site for a fourth hospital for the insane, the legislature appropriated the aggregate sum of \$17,000, of which amount \$2,000 was to be used "for the purpose of meeting the necessary expenses of the commission," and the remainder thereof was to be used "for the purpose of purchasing the said site and land for such hospital, etc.

In disbursing the moneys so appropriated, the responsibility rests, so far as your office is concerned, wholly upon the state auditor in determining to whom and for what amounts warrants shall be drawn, saving, of course, that they may not exceed in the aggregate the gross sum appropriated. When he shall have determined that Mr. Woodbury, or some other person, is entitled to any portion of the moneys appropriated for the purchase of a site or lands, and drawn his warrant accordingly, you have no other course to pursue than to pay it.

H. W. CHILDS, Attorney General.

April 22, 1896.

145

#### STATUTE.

**CONSTRUCTION—General Laws 1895, chapter 241, must be deemed to be restricted in scope to city officers and employees.**

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Sir: You inquire whether General Laws 1895, chapter 241, contravenes article 4, section 27 of the state constitution.

The title is clearly restricted to officers and employes of cities, while the body of the act clearly contemplates the officers and employes of both cities and counties.

It might, with some propriety, be urged that the title is defective from mere oversight or a clerical mistake. I know of no case, however, where a court has assumed to read omitted words into a title; and I fear that in the present case there is nothing save the wording itself upon which to base the contention of a clerical mistake or omission. It is safe to assume that the subject of the act will be treated by the courts as having no broader contemplation than what its literal terms import.

The title being restricted, as we have seen, to city officers and employes, the body of the act can have no broader scope. So far as it belongs to county officers and employes, the act is, therefore, invalid.

Had the title read, "An act to regulate the fees of public officers and employes," or similarly otherwise, the subject of county officers might then have been deemed germane to the subject expressed in the title. As it is, I see no ground on which that doctrine can be safely rested.

H. W. CHILDS, Attorney General.

Feb. 4, 1896.



**CONSTRUCTION—ORGANIZED COUNTY—Special Laws 1889, chapter 374, fixing the compensation of members of the board of county commissioners abrogates Special Laws 1887, chapter 363.**

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Sir: Calling attention to Special Laws 1887, chapter 363, and Special Laws 1889, chapter 374, you ask whether in my opinion the former was repealed by the latter.

I assume that you desire me to restrict your inquiry as to the effect of the law of 1889 upon that provision of the earlier law providing a per diem to members of the committee on roads and bridges.

The legislation material to the question is as follows:

"The salary and compensation of the county commissioners of said county shall be \$100 each per annum and no more; and such members as may serve on the board of equalization the sum of three dollars per day for each day's service not exceeding twenty days in one year." (Special Laws 1878, chap. 216, sec. 1.)

"The county commissioners of Ramsey county are authorized to pay the members of the committee on roads and bridges three dollars per day for each day actually employed in the examination of county roads and the superintending of work on said roads. The accounts for said services to be rendered under oath as to the actual service and not to exceed thirty days in any one year." (Special Laws 1887, chap. 363, sec. 6.)

"The county commissioners of Ramsey county for the faithful discharge of their duties shall each receive the sum of \$300 per annum, payable in equal monthly installments, out of the county treasury of Ramsey county." (Special Laws 1889, chap. 374.)

The last named law repeals in express terms all acts and parts of acts inconsistent therewith.

Neither of the aforesaid special provisions are inconsistent with the last named law made so by virtue of the words "for the faithful discharge of their duties." If those words are equivalent to the expression "for the faithful discharge of all their duties," then clearly the law of 1889 prescribes the only compensation they are entitled to receive. Unless the word "all" must be interpolated, the words quoted from the law of 1889 are superfluous. I deem it fair to hold that the legislature by its last act fixed a salary designed to cover all the services performed by members of the board of county commissioners whatever the capacity in which they are engaged. In keeping with the great body of legislation affecting the county of Ramsey and the city of St. Paul, the act in question is not susceptible, it must be confessed, of the most satisfactory construction.

H. W. CHILDS, Attorney General.

April 15, 1895.

**CONSTITUTIONALITY—General Laws 1895, chapter 8, providing for the organization of cities, is valid.**

ATTORNEY GENERAL'S OFFICE.

Hon. Robert A. Smith, Mayor of City of St. Paul,

Sir: Calling attention to General Laws 1895, chapter 8, you state that the city council of St. Paul request my views as to the validity thereof.

It is urged, I am informed, that the act is deemed invalid within the principle enunciated in *Nicholas vs. Walter*, 37 Minn. 264. As I view the question, that principle has no application to the said act. The court there had under consideration a statute which classified counties upon an unnatural and unauthorized basis—namely, a past event. The act provided for the changing of county seats, and among other things provided, that as to those counties in which the question of change of location had previous to the passage thereof been acted upon, and the county seat thereby "fixed or located by such vote,"

no change should thereafter be effected "unless three-fifths of all the voters present and voting at such election shall vote in favor of such change or removal." As to all other cases, the question of change of the county seat was to be dependent upon a majority vote of the electors of the county.

The court, in assigning one of the reasons for its decision, say: "Why one county which had located its county seat by a vote of its electors twenty-five years or six months before the act passed should require a vote of three-fifths of its electors to remove it, and a county which should so locate it three or six months after the act passed may again remove or locate it upon a mere majority vote, is impossible to conceive, except that the legislature has arbitrarily so provided. But in such matters the legislature cannot arbitrarily so provide. The act is unconstitutional and void."

The act of 1895 is subject to no such criticism. As a law it became complete upon its approval, and at once effective for the incorporation of municipal bodies. It is in character and scope a general enabling act, as much so as any of the general laws which have from time to time been enacted for the organization of cities and villages. Indeed, it was doubtless intended to supersede General Statutes 1878, chapter 10, providing for the incorporation of cities.

It professes in express terms to accomplish the following, among other purposes:

1. To provide for the organization of new cities.
2. To serve as a charter to cities upon the repeal of the law, general or special, under which they are respectively organized.
3. To enable existing cities to lay aside their present charters, if so disposed, and adopt the provisions thereof for their future government.

I am unable to perceive in its provision anything in either respect which partakes of the nature of class or special legislation, or which otherwise offends against the constitution. It will be seen, upon a moment's reflection, that instead of being in the nature of class or special legislation, its purpose is quite to the contrary. It seeks greater uniformity of municipal government, and looks to the extinction by gradual process of a variety of special charters. It enables a city to throw off its old charter and adopt the one tendered. Such legislation is frequently indulged in and is supported by the great weight of authority. (Sutherland on Stat. Const. 75; Endlich on Inter. of Stat. 499.) It is therefore my opinion that chapter 8 is valid, unless assailable for some other reason than that above considered. No other ground has been suggested for its invalidity, nor have I considered any other.

H. W. CHILDS, Attorney General.

March 30, 1896.

148

## TAXATION.

**REFUNDMENT**—General Statutes 1894, section 1610, intended to authorize complete reimbursement to the purchaser or his assignee whose tax title has been adjudged void, as to all moneys paid at the sale as purchase price, together with such sums as were likewise paid in satisfaction of such delinquent taxes, penalties and costs.

ATTORNEY GENERAL'S OFFICE.

A. F. Nordin, County Attorney.

Sir: General Statutes 1894, section 1610, was intended to authorize complete reimbursement to the purchaser or his assignee, whose tax title has been adjudged void, as to all moneys paid at the sale as purchase price, together with such sums as were likewise paid in satisfaction of subsequent taxes, penalties and costs. There is no limitation whatever imposed upon him. It is of no importance whether taxes become delinquent or not. The law assumes that the purchase was made and subsequent taxes paid in good faith. The title failing, the law aims to restore to the purchaser the money which the public treasury has improperly received from him. The refundment does not, however, operate as a payment or cancellation of any of the tax refunded or for which judgment was rendered. They are to stand against

the land as though no tax sale had ever taken place, and are to be included in current taxes in the next delinquent tax list.

The only prudent view to take as to the time for which taxes may be collected against the land in case of such refundment is, that the statute of limitation does not run. The language employed in the case of County of Redwood vs. Winona & St. Peter Land Co., 40 Minn. 512, is possibly capable of a different construction, but it is not necessarily decisive of this question. Such a question was not then before the court, as there had been no attempt to assess the lands until 1886, and the court held that, as the lands were liable to assessment from the date of their conveyance by the railroad company, there was a liability created by statute within the meaning of General Statutes 1894, section 5136, and that the statute of limitations immediately began to run. Nor is the question affected by the case of Mower County vs. Crane, 51 Minn. 201, which is easily distinguishable from the present case.

In the matter presented by you the taxes were properly assessed, but the tax sale was declared invalid for some reason. The statute providing for refundment expressly provides that the refunding of such moneys "shall not operate as a payment or cancellation of any tax included in the judgment or refundment, but the same shall stand as originally extended against the property, and with all accruing penalties, interests and costs be included with the taxes thereon for the current year in the next delinquent tax sale."

This so clearly evinces an intention that the statute of limitations shall not run in such a case, that I am disposed to believe the court will hold that the tax is thereby saved from the operation of such statute. This being true, the auditor should extend against the property taxes for all the years involved in the refundment.

H. W. CHILDS, Attorney General.

May 7, 1896.

149

**NOTICE—REPEAL—The notice required by General Laws 1885, chapter 194, is no longer required.**

ATTORNEY GENERAL'S OFFICE.

Pierce Butler, Esq., County Attorney,

Sir: In view of what is said in Kenatson vs. Great Northern Railway Co., 60 N. W. R. 813, I am of the opinion that the notice provided by General Laws 1885, chapter 194, is no longer required.

The view of the court is that the law of 1885 was enacted under a misapprehension as to the effect of the passage of General Laws 1881, chapter 10, section 22, upon General Laws 1877, chapter 6, section 37. The legislature enacted the provisions of 1885 upon the mistaken view that section 37 had been repealed. Whatever effect the law of 1885 may have had upon section 37 so far as the giving of notice is concerned, it is evident that the passage of General Laws 1889, chapter 198 reenacted it in the form in which it now appears in the last named act. The law of 1885 must, therefore, be deemed repealed or abrogated by it.

H. W. CHILDS, Attorney General.

Dec. 23, 1895.

150

**MINING CORPORATIONS—General Laws 1881, chapter 54, section 1, extra session, construed and held unconstitutional.**

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: I have considered the question submitted by you touching the validity of General Laws 1881, chapter 54, section 1, of extra session (G. S. 1894, sec. 1689). The statute provides, in effect, so far as material, that mining corporations organized under the laws of this state may be taxed as follows: On and for each ton of iron ore mined and shipped or disposed of, one cent for each ton. It is made optional with such companies to accept the provisions of the said act, and having accepted the same, they are thereafter to be bound thereby and entitled to the benefits thereof.



The constitution of this state contains the following provisions: "All taxes to be raised in this state shall be as nearly equal as may be, and all property on which taxes are to be levied shall have a cash valuation and be equalized and uniform throughout the state." (Art. 9, sec. 1.)

The property not exempt by the constitution must be taxed. Says our supreme court, advertng to the provision of the section of the constitution now under consideration: "Equality of burden is therefore the principle of the constitution. There is to be no rule that exempts some property (unless within the specified exceptions) and casts the burden upon the rest. These constitutional provisions render it imperative that all the property of which exemption is not permanent shall be taxed, and preclude any other exemptions than those specified. When there is no power to make an exemption there is none to relieve the property by releasing or refunding the tax after it is levied. What cannot be done directly, cannot be done indirectly." (Le Duc vs. City of Hastings, 39 Minn. 111.)

It is evident that the constitution contemplates that the above class of property shall be taxed upon its fair cash valuation. It is difficult, in my judgment, to conceive of a statute more plainly violative of the constitution than the one in question. It wholly disregards the mandatory requirement of the constitution that taxation shall be based upon a cash valuation, and permits a specific and wholly arbitrary tax of one cent a ton.

Similar statutes under similar constitutions have been held invalid. (State vs. Cumb. & Penn. Rd. Co., 40 Md. 22; People vs. McCreery, 34 Cal. 432.)

It is radically unlike those familiar provisions of our legislation which authorize the payment of a gross earnings tax. Such a tax is designed merely as a substituted method and is based upon the actual gross receipts. It is presumed to be the equivalent of the ordinary method, and is commended because of convenience. "It must be supposed that it was contemplated that this system would, upon the whole, fairly effect the objects of taxation with respect to such corporations, and be equivalent in its results to taxation of the property owned by them." (33 Minn. 537.) As to such a tax, courts have hesitated in upholding it when not based upon contract. (Neelan vs. City of Milwaukee, 15 Wis. 497.)

Under the act of 1881 the company is to pay a fixed tax of one cent a ton, whatever the value of the ore. Nor is this all. The tax is to be exacted only in the event that the ore is shipped or disposed of. In other words, a vast quantity of ore may be mined and held for future advance in price, or otherwise, and thereby escape taxation until the shipment or the disposition thereof.

The act in question was enacted in the very infancy of mining operations in this state, and was evidently designed to foster the same and encourage their development. However wise and salutary the provisions of such a law, I am unable to reach any other conclusion than that they are clearly in violation of the constitution and void.

May 19, 1896.

H. W. CHILDS, Attorney General.

151

**GROSS EARNINGS—RENTS—Rents received by a railroad for a lease of any portion or portions of its line are to be treated as a portion of its earnings for purposes of taxation.**

ATTORNEY GENERAL'S OFFICE.

Hon. A. K. Teisberg, Secretary Railroad and Warehouse Commission,

Sir: I beg to acknowledge receipt of your communication of the 7th inst. in the matter of the taxation of the gross earnings of the Northern Pacific Railroad Company.

The real question at issue is the taxability of rents received by the said company from other companies for the use of certain lines.

I am unable to subscribe to the view of the auditor of the road in which he maintains that the rents are not taxable, "for the reason that they are paid by other roads out of the earnings, and said earnings of other roads are taxed by the state; hence to tax the rental received by this company would be



double taxation." Nor do I understand that such contention finds support in the case of *State vs. St. Paul Union Depot Co.*, 42 Minn. 142. The decision in that case was rested upon the fact that the Union Depot Company was merely designed as an agency through which the several railroad companies might the more effectually and economically carry on their respective transactions. In short, it was a mere instrumentality of each road, and virtually as much a part thereof as any of its stations upon any of its lines. What was paid as rentals were merely contributions by the several companies proportioned to their respective interests to meet the expenses of maintaining the institution, the element of profit to stockholders being wholly foreign to the purposes of its organization.

But the Northern Pacific Company leases certain lines of its road in consideration of certain rentals and thereby enhances its income from its lines. The business done on such lines by the lessees may be much or little, the lessees may or may not haul trains over the leased lines. Every company's business must be treated regardless of the business of another company. It is no defense to the tax upon rentals received by the Northern Pacific Company that its lessees pay taxes upon gross receipts equal thereto, as that is a question of no concern to it whatever. It is not a case of double taxation like that of the Union Depot Company, where the state attempted, in effect, to impose the same tax twice upon the same company. If the Northern Pacific Company is required to pay the tax in question, it will do so but once, and will do so upon what is fairly an income from its business.

You are therefore advised that the exception claimed by the auditor of the company is not proper and should not be allowed.

H. W. CHILDS, Attorney General.

March 8, 1896.

152

**SEED GRAIN**—Penalties do not attach to taxes delinquent for seed grain purchased under the law of 1893 providing for a loan to purchase seed grain.

ATTORNEY GENERAL'S OFFICE.

Henry G. Wyvell, Esq., County Attorney,

Sir: I do not think that penalties attach to taxes delinquent for seed grain purchased under the law of 1893 providing for a loan to purchase seed grain. The law in question is designed to be complete in itself, and the steps therein prescribed must be deemed exclusive as to the remedy of the county in recovering the moneys due it from borrowers. A county can recover from the borrowers only the amount loaned, together with interest at the rate of five per cent per annum. While the term taxes is used in the statute, it does not mean taxes in the sense in which the term is ordinarily employed. The county acquires a lien by virtue of the law and the contract of the borrower, upon the land upon which the seed was sown, and can recover its money by exercising that remedy. I do not mean to suggest, however, that the county may not maintain a common law action against the borrower in case it is found necessary to resort to an expedient.

H. W. CHILDS, Attorney General.

Feb. 15, 1896.

153

**ROAD TAX**—Deduction from road tax on account of using wide tires shall not amount to more than one-half thereof. The statute contemplates the continuous use of wide-tired wagons, in order to entitle a person to such exemption.

ATTORNEY GENERAL'S OFFICE.

S. D. Catherwood, Esq., County Attorney,

Sir: General Laws 1895, chapter 342, contemplates that the deduction from road tax by reason of using wide tires shall not amount to more than one-half thereof. It therefore follows that the owner of several wagons

whose tax is four dollars would be entitled to a deduction in the aggregate, distributing it as you will, of no more than two dollars.

The statute further contemplates the continuous use of the wide-tired wagon. A person owning one team and two wagons, for example, only one of which is wide-tired, would not bring himself within the spirit of the act by alternating in the use of the wagons; and he would not, therefore, be entitled to any deduction whatever. If, however, a person owned two teams and two wagons, and engaged in a business necessitating the continuous use of both, he would be entitled to a deduction, although but one of the wagons were equipped with wide tires. The possessor of two wagons, in short, having occasion to use but one at a time, should use the one with the wide tires, rather than the other, in order to bring himself within the statute.

H. W. CHILDS, Attorney General.

April 23, 1896.

154

**PARSONAGE AND SHEDS FOR HORSES—A parsonage and buildings used as sheds for horses of persons attending church are taxable.**

ATTORNEY GENERAL'S OFFICE.

Mr. P. A. Peterson,

Sir: Replying to yours of the 2d inst., I have to advise you that both a parsonage and buildings used as sheds for the horses of persons attending church are taxable, especially so when not located upon the lot occupied by the church building. From your statement of facts, I am clearly of the opinion that the property in question is subject to taxation.

H. W. CHILDS, Attorney General.

Nov. 8, 1895.

155

**PERSONAL PROPERTY OF NATIONAL BUILDING ASSOCIATIONS—Whether certain personal property of national building associations is taxable: Query.**

**REAL ESTATE OF NORWEGIAN YOUNG MEN'S CHRISTIAN ASSOCIATION OF MINNEAPOLIS—The real estate of the Norwegian Young Men's Christian Association of Minneapolis does not fall within the exemption clause of the constitution and is therefore taxable.**

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: In your communication of the 18th inst. you call attention to the matter of the taxability of the following properties:

1. Certain personal property of national building associations.
2. The real estate of the Norwegian Young Men's Christian Association of Minneapolis.

In respect to the building association, it is urged that General Laws 1895, chapter 141, section 2, is invalid, because it fails to provide "for taxing undivided profits, cost of expense fund and other items." The statute above named is amendatory of General Laws 1891, chapter 131, section 35. The section as originally framed was as follows: "The amount standing to the credit of each member of any such association upon its books shall be considered and held as the individual credit of such member; and each member shall list the shares held by him for taxation at their real value in money in the county of his residence the same as other credits are listed, except shares on which loans have been made or money advanced by the association."

It was amended at the recent session of the legislature by striking out the excepting clause. A case arose in the district court of Hennepin county under the pre-existing law, in which Judge Russell, before whom the case was tried, said in the memorandum filed by him: "If the exception had not been added to this last section, it is possible it might, with the preceding section, furnish a method, in theory, at least, by which all the property of the association

could be taxed, but with the exception, it presents an entirely different condition."

I am of the opinion that the statute in its present form is not subject to the objection urged against it. However, I recognize the force of the objection, and deem it wise, in view of the importance of the question, that it be judicially determined, and, therefore, would recommend that the property of the companies be assessed. This will be in violation of a rule of this office that administrative officers should not question the validity of a statute not plainly and manifestly void. As the question cannot well be raised in any other way, the rule may now be appropriately disregarded.

As to the Norwegian Young Men's Christian Association, I am of the opinion, from the facts as presented, that it does not fall within the exemption clause of the constitution. Its property should, therefore, be assessed.

H. W. CHILDS, Attorney General.

June 28, 1895.

156

**MORTGAGES—The law does not require the listing of mortgages in cases where the mortgagees reside elsewhere than in the town or district in which the real estate is situated.**

ATTORNEY GENERAL'S OFFICE.

Mr. G. W. Putnam, County Auditor,

Sir: The law does not require the listing of mortgages in cases where the mortgagees reside elsewhere than in the town or district in which the real estate is situated on which the mortgages are a lien. The theory of the law is, and in fact it has been so declared by express terms, that a mortgage is a credit and the credit thus acquired is a taxable interest. The law further provides that there shall be appended to each personal property assessment book a list of all mortgages or other real estate securities held, owned or controlled by the residents of the town or district, showing the name of the owners or agents, alphabetically arranged, and the amount due on each instrument.

The owner of the mortgage where the real estate is situate in your county who resides in some other county may have his credit as a mortgagee taxed as personal property in the county in which he resides. The opinion of ex-Attorney General Hahn, to which you refer, is not at variance with this view. I fail to understand, therefore, why mortgages of nonresidents are listed at all in your county.

Cases might arise, of course, where a mortgagee residing in a given township removes therefrom. The assessor would not continue to list his mortgages after his removal. There is no express authority for eliminating such items from the tax lists, for the reason that in the theory of the law they never should have had a place in such lists. There would be no impropriety whatever in their being omitted by you; but, better still, you should instruct your assessors not to list mortgages held by nonresidents, save in those cases where they may be controlled by actual residents.

H. W. CHILDS, Attorney General.

Nov. 23, 1894.

157

**FORFEITED TAX SALE—Where a tract of land was offered for sale at forfeited tax sale in 1881 and struck off to the state and subsequently sold by the state auditor to a private party, General Laws 1889, chapter 198, as to notice is not applicable.**

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor.

Sir: I beg to acknowledge receipt of yours of the 20th inst., in which you say that a piece of land was offered for sale at forfeited tax sale in 1881 and struck off to the state. In 1890 it was sold under direction of state auditor to a private party. No notice was ever given as directed in chapter 198, General Laws 1889, of expiration of redemption.



You inquire whether the original owner has the right to redeem property struck off to the state at the forfeited sale of 1881, and whether it is necessary to give the personal notice of expiration as in other tax sales.

The question is governed by a rule laid down in *State vs. Smith*, 36 Minn. 456, wherein it is held that section 37, General Laws 1877, chapter 6, being General Statutes 1878, chapter 11, section 121, which, so far as your question is concerned, is identical with the law of 1889 requiring notice of the expiration of the time of redemption by persons holding tax certificates, is not applicable to an assignee or grantee acquiring such interest after forfeiture.

H. W. CHILDS, Attorney General.

July 24, 1895.

158

**LISTING BY AUDITOR**—When the auditor is authorized to list omitted property.

ATTORNEY GENERAL'S OFFICE.

Mr. H. S. Collins, County Auditor,

Sir: Where personal property has escaped listing by the assessor in a current year and the omission is not discovered until subsequent to the adjournment of the county board of equalization, it should not be listed until the following year. Section 43 contemplates listing by the auditor before the session of the equalization board has terminated.

Section 113 contemplates other than current years.

H. W. CHILDS, Attorney General.

Feb. 20, 1895.

159

**AUTHORITY OF STATE AUDITOR**—The state auditor is not presumed to act in the capacity of a board of equalization, but to afford such relief in individual cases as may be presented upon the favorable recommendation of the board of county commissioners and the county auditor of the proper county.

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: I beg to acknowledge receipt of your communication of the 25th inst. in the matter of the abatement of taxes on real property in the town of Crystal Lake, county of Hennepin and State of Minnesota.

Section 112 does not, in my opinion, clothe you with authority adequate to afford the relief sought.

By section 119 you are authorized to hear and determine all matters of grievance relating to the taxation on account of excessive valuation of property, or for other cause, when submitted to you with a statement of facts, in the case and favorable recommendation of the commissioners and auditor of the county in which the property is situated, and you are further authorized in accordance with the advice and opinion of this office to decide all questions that may arise in reference to the true construction of chapter 1, General Laws 1878, and the decision reached by you will have the force and effect of law until overruled by the judgment of a court. It is not within the contemplation of section 119, however, that you shall act in the capacity of a board of equalization, but to afford such relief in individual cases as may be presented to you upon the favorable recommendation of the board of county commissioners and county auditor of the proper county. Undoubtedly, it is not the intention of the statute that you should be governed by any technical rules in determining your action in a given case.

While it appears from the presentation made in the said matter that the relief is sought not by the owners of the property involved, but by the board of township supervisors, I am of the opinion that you have, nevertheless, acquired jurisdiction to consider the matter of the said grievance, and that you may afford such relief as the facts in the case seem to warrant. I would, however, recommend that before taking action thereon you require a more specific showing, if by you deemed advisable, as to the particular tracts and



parcels of land involved, as I do not believe that you would be warranted in making a general reduction of the property of the township in the manner indicated by the petition of the township supervisors.

H. W. CHILDS, Attorney General.

Jan. 26, 1895.

160

**ABATEMENT—Certain facts considered and held not to entitle the applicant to the relief sought.**

ATTORNEY GENERAL'S OFFICE.

Hon. M. A. Biermann, State Auditor,

Sir: I have considered the application of Mr. John E. Stryker for abatement of taxes assessed against certain property formerly belonging to the grant of land made by the state to the St. Louis & Sioux City Railroad Company and located in Cottonwood county.

The application is made, I assume, pursuant to chapter 128, General Laws 1887. Whether Mr. Stryker is in fact entitled to the relief sought, I am of the opinion that he does not present you with such a showing as brings him within the provisions of the above statute. The affidavit recites that he purchased the lands July 15, 1891, in good faith, believing the same to be exempt from taxation and wholly untaxable at and prior to the date of the said purchase.

Section 7 of the said act bestows the right of abatement upon actual settlers only, who use the lands for farm purposes and who bought them in good faith, etc. Mr. Stryker makes no showing in this respect, and hence is not, in the absence thereof, entitled to abatement.

H. W. CHILDS, Attorney General.

Dec. 31, 1894.

161

**PUBLICATION—DESCRIPTION—A tax judgment should follow the description contained in the tax list, and the publisher must print the description as prepared for him by the proper officers.**

ATTORNEY GENERAL'S OFFICE.

Hon. R. C. Dunn, State Auditor,

Sir: I have considered the question submitted by Glen Howard in his communication of the 4th inst.

It is my view of the statutes applicable to the case that a tax judgment should follow the description contained in the tax list. I am aware of no authority for the consolidation of descriptions in a tax judgment as appeared upon such lists. The proceeding is *in rem*, and where a given tract has been assessed individually upon which taxes become delinquent, judgment should be rendered against each particular tract. Where contiguous tracts have been assessed as an entirety, the judgment would, of course, be rendered against them as such entirety.

But whatever the law in this respect, the publisher must print the descriptions as they are prepared for him, and although a number of tracts, improperly it may be, are embraced in one description, he will be entitled to compensation only for the single description.

H. W. CHILDS, Attorney General.

Feb. 8, 1896.

**FORFEITED TAX SALE**—Where lands were sold under the forfeited tax sale of 1881 and it appeared that the statute was fully complied with down to and including the sale, it is improper to recognize ownership in the delinquent owner to the extent of receipting for taxes embraced in the judgment pursuant to which the land was sold at such sale, or otherwise.

ATTORNEY GENERAL'S OFFICE.

Mr. J. C. Mills, County Auditor,

Sir: Where lands were sold under the forfeited tax sale of 1881, and it appearing that the statute was fully complied with down to and including the sale, it would now be improper for you to recognize ownership in the delinquent owner to the extent of receipting for taxes embraced in the judgment pursuant to which the land was sold at such sale, or otherwise. General Laws 1881, chapter 135, section 7, places a limitation upon the time within which an action might have been commenced to set aside a judgment. The only facts which could avail to defeat the title of the purchaser are jurisdictional defects, exemption and actual payment of the tax prior to judgment. (Whitney vs. Wegler, 54 Minn. 235.) It is very questionable, at best, whether the purchaser at the said tax sale was required to serve notice upon the owner. In this respect the language of the said law of 1881 differs from the forfeited tax sale of 1893 (chapter 150), as in the last named law it is expressly provided that notice shall be given.

It is much the safer practice for you to pursue to decline to recognize the rights of claimants, except, perhaps, in the exceptional cases above noticed, and leave them to pursue their appropriate remedies in court.

H. W. CHILDS, Attorney General.

April 15, 1896.

**EQUALIZATION**—The state board of equalization is authorized to add to the aggregate valuation of any class of personal property of any county which they believe to be valued below the true and full value thereof, such percentum in each case as will raise the same to its true and full value in money.

ATTORNEY GENERAL'S OFFICE.

To the Honorable State Board of Equalization,

Gentlemen: The question submitted to me, as I understand it, is this:

In a certain county lumber and flour were listed under subdivision 16, section 16 of the Tax Law, by the assessors as the goods and merchandise of a merchant. Is your board now at liberty to raise the valuation of the property listed by the assessors under the same subdivision, exclusive of lumber and flour.

The board is authorized, under the statute, to add to the aggregate valuation of any class of personal property of any county which they believe to be valued below the true and full value thereof such percentum in each case as will raise the same to its true and full value in money. If, therefore, it comes to the knowledge of the board that the valuation of any class or classes of property listed under the said subdivision is too low, the board has undoubted authority to raise such valuation to such extent as justice may require. The mere fact that the assessor has listed a class of property under any particular subdivision, whether properly or otherwise, does not deprive the state board of equalization of the power of equalizing values in accordance with the requirements of the statute.

Your question is therefore answered in the affirmative.

H. W. CHILDS, Attorney General.

Sept. 19, 1895.

## TOWNSHIPS.

**TOWN CLERK—COMPENSATION—**A town clerk is not entitled to a fee for the drawing of town orders.

ATTORNEY GENERAL'S OFFICE.

Mr. A. C. Evanson,

Sir: The law does not, in my judgment, authorize a fee to a town clerk for the drawing of town orders. His compensation is expressly provided by law, and I am unable to construe any provision of the statute as authorizing the exaction of a fee for the service above indicated. A public officer is entitled to compensation only for such services as the law expressly warrants.

H. W. CHILDS, Attorney General.

Nov. 7, 1894.

**DITCHES—EXPENSES—**The expense of constructing ditches pursuant to chapter 108, General Laws 1889, falls upon the petitioners.

ATTORNEY GENERAL'S OFFICE.

Mr. F. A. Paschel, Town Clerk,

Sir: The expense of constructing ditches pursuant to chapter 108, General Laws 1889, falls upon the petitioners. (See sections 6 and 8.)

The ditch should be established pursuant to a survey thereof by a competent person. It is not essential, however, that the survey be made by a civil engineer. Any person who has sufficient skill and experience to accurately describe the same may be employed for that purpose. (See section 4.)

The act in question does not warrant interference with the beds of natural streams.

Unquestionably, the board of supervisors may require that a "blind ditch" instead of an open shall be constructed, if they deem such action advisable. The term "drain" includes the first named method.

H. W. CHILDS, Attorney General.

Jan. 16, 1895.

**MEETINGS OF TOWNSHIP BOARD—**The law provides that it is the duty of the board to meet as often as they deem it necessary to audit bills of overseers of public highways.

ATTORNEY GENERAL'S OFFICE.

Mr. George Tams, Chairman Board of Supervisors,

Sir: Referring to your letter of the 25th inst., the law provides that the town board shall meet annually on the Tuesday next preceding the annual town meeting to be held in said town, and at such *other times* as they deem necessary and expedient for the purpose of auditing and settling charges against said town. It is not the purpose of the law that the overseer of public highways or others performing services for the town should necessarily wait until the annual town meeting for getting their compensation. The law clearly provides that it is the duty of the board to meet as they deem necessary and audit such bills and order them paid.

In answer to your second question, would say, that the chairman of the board of town supervisors could not sign an order each day for the work done by the supervisors on such day, nor could he sign an order at any time until it has been audited by the town board at such regularly called meeting.

H. W. CHILDS, Attorney General.

Feb. 27, 1895.



**FEES**—The electors of a town meeting may, before the election of officers, vote to reduce fees prescribed for their services, but have no authority to prescribe a maximum sum for the compensation of such officers.

Mr. C. E. Sandborn,

ATTORNEY GENERAL'S OFFICE.

Sir: The statute expressly provides that the electors of a town meeting may, before the election of officers, vote to reduce fees prescribed for their services. I am aware of no provision, however, which authorizes a maximum sum for the compensation of such officer. When it is sought to reduce the compensation it should be done with reference to the per diem, as, for instance, that he be paid \$1.50 or any other sum less than that named in the statute.

March 20, 1895.

H. W. CHILDS, Attorney General.

**SUPERVISORS—FEES**—A township supervisor is not entitled to receive more than twenty dollars compensation in any one year.

Mr. W. A. Doe, Town Treasurer,

ATTORNEY GENERAL'S OFFICE.

Sir: In yours of the 20th inst. you state that several of the township officers have been taking fees greatly in excess in the aggregate of the twenty dollar limitation imposed by law. They have justified their action, it seems, upon the view that the twenty dollars named in the statute has reference merely to their compensation for attendance upon the meetings of the board; that it was not intended to deprive them of compensation for services necessarily performed in the matter of the laying out of highways, construction of bridges, etc.

I am at a loss to perceive how such a construction as that contended for by those officers can be justified in view of the plain terms of the statute. The law in so many words declares that "no town supervisor shall receive more than twenty dollars compensation in any one year." No matter how varied or expensive his services may have been in behalf of the township, he is entitled to no greater compensation than that expressly provided as aforesaid. It is a well settled principle of law that an officer is entitled to only such compensation as the law has, in express terms, prescribed.

May 22, 1895.

H. W. CHILDS, Attorney General.

**CONTAGIOUS DISEASES — EXPENSES**—A township cannot recover from persons moneys expended in their behalf in suppressing contagious diseases.

A. F. Nordin, Esq., County Attorney,

ATTORNEY GENERAL'S OFFICE.

Sir: It appears from your communication that expenses have been incurred by one of the townships in your county in suppressing diphtheria which has become epidemic there. These expenses, it seems, were incurred to a greater or less extent in caring for persons who were abundantly able to provide themselves with the necessary medical treatment. You inquire whether the township may now recover from such persons any part of the moneys thus expended in their behalf.

The township having thus incurred expenses, there is not, in my judgment, any way whereby the persons cared for can now be required to recompense it. Unquestionably a person able to provide such attendance for himself



or the members of his family is not relieved from so doing by the mere fact that public authorities, with a view to the public welfare, have caused him or his family to be placed in quarantine. Public authority may properly resort to such prudential measures in guarding against the spread of a contagious disease as may be reasonably necessary, even to the isolation of afflicted persons, but when such measures are adopted, it does not follow that the burden of providing for medical treatment must be borne by the public. It is not unfrequently the case that during an epidemic of smallpox the authorities provide a place for the treatment of persons afflicted with the disease and employ guards to protect the premises and prevent communication between such persons and the public. Furthermore, it might be deemed advisable to employ a physician to supervise measures taken to protect the public and the treatment of such diseased persons. Expenses incurred for such purpose would be borne wholly by the public. Ordinarily the selection of medical attendance is a private right and duty, but where the public authorities have employed physicians to attend patients thus afflicted, as in the case of the township in question, I seriously doubt whether recourse can thereafter be had against such persons for reimbursement on account of expenses thus incurred.

H. W. CHILDS, Attorney General.

Jan. 9, 1896.

170

**FORMATION—INDEBTEDNESS—Views expressed as to the course to be pursued in the payment of orders issued by an original township from which several new townships were subsequently carved.**

ATTORNEY GENERAL'S OFFICE.

Mr. Douglas Greeley, County Auditor,

Sir: It appears from your communication of the 15th inst. that, in October, 1895, several townships were carved out of the territory previously constituting the township of Hinckley. At and prior to such action on the part of your board of county commissioners, the township of Hinckley was indebted to the amount of \$5,000, evidenced by outstanding orders drawn upon the road and bridge and general revenue funds. At a meeting of the board held March 9, 1896, the board passed a resolution purporting to be drawn pursuant to chapter 180, Laws of 1893, in which all taxes, both current and delinquent, levied upon property of any description in the original town of Hinckley and remaining uncollected, were ordered to be divided pro rata among the several newly organized townships and the present town of Hinckley, according to the assessed valuation of the property within the said respective townships, and the auditor and treasurer of the county were directed to pay the moneys thus apportioned in accordance with the terms of the said resolution. The uncollected current taxes are insufficient to pay the outstanding indebtedness of the town of Hinckley as it existed at the time of the formation of the new townships. Demands are now made upon you, on the one hand, by the treasurer of the township of Hinckley, who insists upon being paid the taxes levied in the original town of Hinckley for the purpose of paying outstanding orders appearing on his books, upon the ground that said funds had, long prior to the order of apportionment made by the county commissioners, been "appropriated for a purpose inconsistent with such apportionment;" and, on the other hand, by the respective treasurers of the said new townships by reason of the resolution aforesaid. Again, the holders of outstanding orders demand that the tax thus gathered shall be applied to the payment of their claims.

You submit the following questions:

1. Will I be justified in complying with the order of the commissioners to apportion and pay the taxes to the treasurers of the several new towns?
2. Would I be justified in drawing a warrant in favor of the treasurer of the present town of Hinckley for all the taxes uncollected at the time of the division, or so much thereof as shall be sufficient to satisfy the outstanding indebtedness at that time, and apportion the balance among the new towns?

General Laws 1893, chapter 180, empowers a board of county commissioners, in case of the formation of a new township, to apportion *pro rata* according to assessed valuation, among the several parts of the town so divided, any funds then belonging to such town, or to which such town is entitled, and not raised or theretofore appropriated for a purpose inconsistent with its apportionment, and they are further authorized in such event, "to apportion in like manner, but with due regard for the purpose for which the same have been levied, all taxes then levied or assessed for the benefit of the town so divided and remaining uncollected."

General Laws 1895, chapter 227, under which your board of county commissioners assumed to act, contains the following provisions: "Nothing in this act shall be so construed as to release any property in or belonging to any portion of the town so divided, from any tax levied or assessed prior to such division being made, or to release or discharge any of said property from the payment of any bonded or other indebtedness existing against said town at the time such division is made."

It is obvious that the tax levied prior to the formation of the new townships should be devoted to the payment, first of the matured obligations of the original township. It appearing that a large amount of orders were outstanding drawn upon several funds for the purposes hereinbefore named, that should be deemed an appropriation of the taxes within the meaning of the statute of 1895, for which reason the board acted without proper authority in directing the distribution of the said moneys among the several townships without regard to the outstanding indebtedness.

Inasmuch as all the territory embraced within the original township is by the express terms of the law of 1895 required to contribute *pro rata* to the discharge of an indebtedness existing prior to the date of the formation of the new township, I fail to perceive on what view of the law your board assumed the right to direct a diversion of the taxes from any other purpose than the payment, so far as necessary, of the outstanding orders.

However, the question is an important one, both to the townships in question, and to yourself. My views cannot be controlling of the question, and parties will, of course, be at liberty to contest their rights in court. All in all the more prudent course for you to pursue, unless all parties are disposed to acquiesce in the views herein expressed, is to decline to issue an order in favor of any one until directed to act pursuant to a judgment of the court. A case might easily be presented in which one of the townships might seek to mandamus you to draw an order in favor of the treasurer thereof for the amount claimed under the resolution. By this means an early and inexpensive determination of the question might be reached in the district court. Nor is there any reason why all parties might not submit the question to the court, by agreeing to a statement of facts, without the formalities of the ordinary litigation. In such a case, the question could be taken up by consent of parties at any time which would suit the convenience of the court.

H. W. CHILDS, Attorney General.

May 19, 1896.

171

**HERD LAW**—The herd law is not operative in an unorganized county as to the right of the electors of a township to vote upon the subject of restraining cattle.

Mr. J. J. Ellis,

ATTORNEY GENERAL'S OFFICE.

Sir: It is at best extremely doubtful whether the herd law is operative in an unorganized county, especially so as to the right of the electors of a township to vote upon the subject of restraining cattle. While your citizens might informally agree at a mass meeting among themselves to adopt such a policy with reference to cattle, it would have no legal force, but depend for its enforcement upon the acquiescence therein by the citizens of the township.

H. W. CHILDS, Attorney General.

June 4, 1896.

**FIRE DEPARTMENT—APPARATUS—BY—LAWS—**A village organized under the general village law is authorized to establish a fire department. The officers of a volunteer fire department must be chosen by the village council. All by-laws or regulations relative to a volunteer fire department should be approved by village council. Fire apparatus is primarily under the control of the village council.

ATTORNEY GENERAL'S OFFICE.

Mr. F. O. Beardsley, Village Recorder,

Sir: I assume from your communication of the 28th inst. that you are incorporated under the general village law. Subdivision 10 of section 21 of chapter 245 of the Laws of 1885 gives the village council power to establish a fire department, to appoint the members and agents thereof, and prescribe and regulate their duties, etc. Under the provision, the officers of a volunteer fire department must undoubtedly be chosen by the village council. Your first question is therefore answered in the affirmative.

All fire apparatus is primarily under the control of the village council, and they may order its removal from one place in the village to any other place they may choose. The provision giving the council authority to prescribe and regulate the duties of the officers and members of a fire department vests the council with the authority to make by-laws, and all by-laws or regulations relative to a volunteer fire department should be submitted to and approved by the village council before they become operative.

H. W. CHILDS, Attorney General.

Oct. 29, 1895.

**READS—**Certain legislation affecting the village of Reads construed.

ATTORNEY GENERAL'S OFFICE.

John H. Mullen, Esq., County Attorney,

Sir: In your communication of the 20th inst., calling attention to the several acts of the legislature pertaining to the village of Reads, you raise the following questions:

1. Does the act of 1895 repeal the act of 1868 incorporating the village of Reads and the several acts amendatory thereto?

2. If it does so repeal said act, does so much of the territory of said village as was formerly embraced in the township of Pepin in said county become included in said township without any further action on the part of the citizens of said township or of the former citizens of said village?

3. Does that portion of the territory that was taken from the city of Wabasha by the amendment of 1891 again become attached to the said city of Wabasha without any further action on the part of said city or by the citizens of said attached territory?

The questions presented are not without their difficulties. In the legislation in question, as everywhere else, the intention of the legislature must govern. The primary question is: Did the legislature intend, as expressed in General Laws 1895, chapter 390, to repeal the charter of Reads and thereby extinguish its corporate existence? Such charters are usually conferred not arbitrarily, but in deference to the wishes of those desiring municipal government; nor is it of any importance whether the charter was specially derived or rests upon a general enabling act. Being so conferred, the charter will not ordinarily be recalled except at the solicitation of the beneficiaries. An act so arbitrary and oppressive as the extinguishment of the corporate existence of a village or city without such solicitation can never be presumed in the absence of the clearest and most positive terms evincing an intention so to do. Undoubtedly, the power of the legislature in such regard is, in the absence of express constitutional restraint, ample to effect an arbitrary extinguishment. In this state, the repeal of an act which repeals a former act does not revive the original act, unless it is so specially provided. (G. S. 1894,



sec. 258.) But that is merely a rule which the legislature has prescribed for itself, and from which it may at any time depart. It is a general rule in the construction of statutes that the re-enactment of a previous law is to be construed not as an implied repeal, but as a continuation thereof, so that all interests under the original statute remain unchanged. (23 A. & E. Enc. of L. 515.)

Special Law 1891, chapter 51, should be regarded a revision of the pre-existing law, wherein was adopted, unchanged, the greater part of the provisions of the law revised. The title of the incorporating act, it should be noted, remained unchanged, nor do we discover any intention in the act of 1891 to affect the corporate existence of the village. It was, in other words, a revocation of the charter and bestowment of another, but the provisions of the law of 1891 became incorporated in the act of 1868 as fully as if they had been originally enacted in the charter. I have not compared the two enactments with sufficient care to advise myself as to all respects in which the charter provisions were modified by the subsequent law. It is safe to say, however, that comparatively few changes were thereby effected.

If the views above expressed are sound, and it be a fact that the act of 1891 did not disturb the corporate entity of the village, it goes far to explain the meaning of the act of 1895, chapter 390. The last named act goes no farther, surely, than to repeal what was enacted in 1891. If the charter still survives, as I am inclined to believe it does, the legislature did not intend to strip the municipality by the act of 1895 of all power under it; and therefore it must be manifest that the last named repealing act was intended to restore to the village, so far as might be possible, the provisions of the charter of 1868.

I have not overlooked the language employed in section 11 of the act of 1891. While the terms "supersedure," "repeal" and "suspend" are employed, it is very manifest that the legislature was careful to preserve to it every right and power enjoyed under the old charter.

While the question as to the effect of the act of 1895 is certainly a close one, I cannot believe that the legislature thereby undertook so radical a step as the complete destruction of the corporate existence of the village. If that had been contemplated, it is reasonable to assume that apt terms would have been employed, and that some reference would have been made to the incorporating act of 1868.

In view of the peculiar features of the legislation in question, it is desirable that the matter be submitted to the adjudication of the court in some appropriate form of action. It cannot be fairly said that the act of 1868 is now so clearly inoperative as to justify me in advising you that the corporate existence of the village of Reads ceased on the sixth day of February, 1896.

The foregoing disposes of the first and second questions. Not so as to the third.

The act of 1891 detached certain territory from the city of Wabasha and incorporated it within the village of Reads. It then became wholly dis severed from the city, as much so as if it had never belonged thereto. The repeal of the act by which this was accomplished did not operate to restore the territory to the city; indeed, it was not within the power of the legislature of 1895 to annex it thereto by a special act. It probably reverted to the township from which it was originally taken.

March 23, 1896.

H. W. CHILDS, Attorney General.

174

#### MISCELLANEOUS.

**LOGS—SCALING—Timber cut under permits issued prior to the time when the provisions of General Laws 1895, chapter 163, became operative, is to be scaled pursuant to the provisions of that law.**

ATTORNEY GENERAL'S OFFICE.

Hon. S. S. Brown, Surveyor General Logs and Lumber, Second District,  
Sir: In your communication of the 25th inst. you inquire whether timber cut under permits issued prior to the time when the provisions of General



Laws 1895, chapter 163, became operative, is to be scaled pursuant to the provisions of that law, or of the pre-existing law.

I am clearly of the opinion that the scaling of timber or logs must now be done under the law of 1895. It was manifestly competent for the legislature to adopt any regulation it might deem advisable in determining the quantity of timber sold. Inasmuch, however, as the permits issued under the pre-existing law provide that the expenses incident to scaling shall be borne equally by the contracting parties, it will be proper to carry out that provision of the contract and divide the expenses based upon the fee provided by the law of 1895 equally between the parties.

In all other respects, the provisions of the law of 1895 must be observed.  
H. W. CHILDS, Attorney General.

Oct. 29, 1895.

175

**LABOR BUREAUS—BOND—The giving of the bond required by General Laws 1885, chapter 205, does not relieve the keeper from liability to a prosecution for crime.**

ATTORNEY GENERAL'S OFFICE.

Hon. L. G. Powers, Commissioner of Labor.

Sir: Calling attention to General Laws 1885, chapter 205, you ask whether a licensee thereunder who is guilty of obtaining property by false pretences may be prosecuted therefor in a criminal action, notwithstanding the fact that he is liable upon his bond for the same fraud to the person injured.

The purpose of the act is the protection of those who employ the services of a labor bureau or agency. With this end in view the giving of a bond is made a prerequisite by the statute to the right of keeping such bureau or agency. In the absence of such a provision an individual dealing with the keeper of the bureau might insist, is so disposed, upon a bond for his individual protection; but for manifest reasons such a precaution has seldom, if ever, been resorted to. The legislature has therefore sought to provide for a bond available to all who might suffer at the hands of such a keeper. It serves to insure the collection of any judgment which may be recovered against the keeper. It was not intended as punishment, nor is it in the nature of punishment.

I am therefore of the opinion that the giving of a bond does not relieve the keeper from liability to prosecution for any crime he may commit.

H. W. CHILDS, Attorney General.

Jan. 29, 1896.

176

**STEAM BOILERS—INSPECTION—Where steam boilers have been inspected within a year by an insurance company, it is unnecessary that they be inspected by a state inspector, unless, in his opinion they have, from any cause, been rendered unsafe.**

ATTORNEY GENERAL'S OFFICE.

Hon. Henry Wolfer, Warden State Penitentiary.

Sir: Referring to the subject of your telephone message of yesterday, I find that the statute requires an inspection of at least once a year of steam boilers. Inspections may be made more frequently when the public safety may seem to require it. When a boiler has been inspected by an insurance company, it is as effectual as if done by a state inspector. Your boilers having been inspected within a year by an insurance company, no further inspections will be necessary, unless, in the opinion of the state inspector they have, from any cause, been rendered unsafe.

H. W. CHILDS, Attorney General.

Aug. 9, 1895.

**CONVICTS AS WITNESSES**—Superintendents of penal institutions should obey the orders of the district court directing the attendance as witnesses of convicts under their charge.

ATTORNEY GENERAL'S OFFICE.

Hon. William E. Lee, Superintendent Minnesota State Reformatory,

Sir: As bearing upon the question submitted, I call your attention to a letter written you under date of Dec. 18, 1894, in reply to a somewhat similar question. You were then advised that it would be unauthorized to allow persons to leave the institution as witnesses, save in obedience to an order of court directing it. In the case to which you refer in your letter of the date first above named, you inclose an order of the district court in and for Wright county directing you to deliver to the sheriff of that county the body of the prisoner therein named. The case falls therefore squarely within the instructions given in December, 1894. I do not think that you could successfully resist obedience to such an order; moreover, it would be a very harsh, if not an oppressive practice, in many cases, for the state to decline to permit the inmates of its institutions to serve the cause of justice in response to such demands. You are therefore advised that you may properly respond in obedience to orders of court in such cases.

H. W. CHILDS, Attorney General.

July 11, 1895.

**PUBLIC PARKS**—Where lands are dedicated to a city for public parks only, the municipality has no authority to devote them to other purposes.

ATTORNEY GENERAL'S OFFICE.

Albert Steinhauser, Esq., City Attorney.

Sir: The authority of your city council to grant to a private citizen the right of erecting permanent structures upon public parks depends altogether upon the terms of the dedication of the site of such parks. Where they are dedicated to the city for park purposes only, whether or not the terms of the dedication are expressly prohibitive of the uses of the property for other purposes, the city council has no authority to devote them to other than park purposes. The council would be subject to an injunction restraining them from entering into such a contract with a private person, and the rule is doubtless the same as to parks which have been acquired, if any, by condemnation proceedings. I assume, of course, that the buildings to which you refer are to be used for private purposes.

H. W. CHILDS, Attorney General.

Feb. 8, 1896.

**FINANCIAL STATEMENT**—A board of county commissioners has no authority to dispense with the publication of the financial statement.

ATTORNEY GENERAL'S OFFICE.

Hon. C. C. Whitney, State Printer,

Sir: You inquire, in effect, whether General Statutes 1894, section 680, is, so far as it pertains to the publication of a financial statement, mandatory, or, in view of section 716, merely directory.

Section 716 does not, in my judgment, in any wise control the construction to be placed upon section 680. All that can fairly be said of it is that it confers upon the board of county commissioners the power to provide for a preparation of the annual statement otherwise than annually. Possibly, though I doubt it, it may contemplate authority, when the public interests require it, to provide for a statement to be prepared by some other person than the county auditor.

In view of the very positive terms in which section 680 is framed, I feel very confident that it was not the intention of the legislature to change the policy so clearly evinced therein by the language employed in the other section. Had the legislature intended to confer discretionary powers upon the county commissioners as to the publication of the statement, that purpose would have been evidenced by appropriate language in the section, or in close connection therewith. It was said, in *Mitchell vs. Comm'rs*, 24 Minn. 461: "It is needless to inquire into the objects of the statute, as it is clear and explicit in its terms and meaning, and it must be presumed that the legislature had in view some beneficial public purpose in requiring publicity to be given to the particular statement therein mentioned."

Undoubtedly, the purpose was to guard against extravagance and corruption by requiring a publication of an epitomized statement of expenditures. It is in accord with a policy which has characterized the legislature in dealing with other public bodies intrusted with large expenditures of public moneys. To hold that publication is discretionary with the board of county commissioners would be, in my opinion, to rob the statute of the very purpose it was designed to effect. It would enable the authors of an extravagant or unlawful use of public funds to conceal their misdoings from the public gaze.

I am therefore of the opinion that section 680 is mandatory.

H. W. CHILDS, Attorney General.

Feb. 3, 1896.

180

**STORAGE COMPANIES—Different classes of storage companies considered with reference to the application of various provisions of the statutes.**

ATTORNEY GENERAL'S OFFICE.

His Excellency, D. M. Clough, Governor,

Sir: I beg to acknowledge receipt of your communication of the 12th inst. inclosing the letter of a certain corporation, in which it is asked, in substance, whether companies operating under the provisions of General Laws 1895 (No. 50, Pop. Ed.) are authorized to do business under the provisions of General Laws 1885, chapter 202.

The legislation upon the subject of storage companies has become somewhat involved by reason of the passage of the said act of 1895. It is evident that the legislature intended to preserve the law of 1885, as it is not only expressly referred to in the later law above cited, but was also amended at the same session in which that law was passed. (G. L. 1895, No. 173.) The legislature must be deemed to have narrowed the scope of the application of the law of 1885 to the extent that it now applies only to railroad or transportation companies holding goods in cars, freighthouses or warehouses, for a period not exceeding twenty days. All other transportation or storage companies, except those receiving grain in bulk, fall within the contemplation of the law of 1895.

While this seems the most rational view to take of the law, it does not perfectly harmonize all of its various provisions. It is expressly provided that when a transportation company transfers goods to a storage company and collects therefrom its proper charges, the latter shall have a lien upon the goods, enforceable under sections 1, 2, 3 and 4 of the law of 1885. To that extent, at least, the earlier law still applies to such companies. It is to be observed that it is expressly provided in section 9 of the law of 1895 that "it shall be unlawful for any person, persons or corporation not duly licensed as herein provided, to conduct or carry on the business of a storage company or warehouseman in this state." All storage companies must therefore be brought under its provisions, and it follows that the only bond required will be the one therein provided, viz., a bond of \$5,000. Furthermore, replying to a suggestion of the inquiring company, the law recognizes no such classification as general and special warehousemen. A person or corporation engaged in storing one or more classes of merchandise for the public for hire, is a storage company under the meaning of the act of 1895.

H. W. CHILDS, Attorney General.

Aug. 16, 1895.



**QUO WARRANTO—STATE BOILER INSPECTOR—A member of the legislature held ineligible through his constitutional term to the office of boiler inspector.**

ATTORNEY GENERAL'S OFFICE.

In the Matter of John B. Sutton, State Boiler Inspector.

I am requested to file an information in the nature of a quo warranto against Hon. John B. Sutton to test his title to the office of state boiler inspector, to which he was appointed by the governor of this state in the month of May of the present year.

At the last general election Mr. Sutton was elected a member of the house of representatives from the Twenty-third legislative district, and thereupon duly entered upon and continued in the discharge of the duties thereof until his resignation therefrom, occurring a short time prior to his said appointment. His title to his present office is assailed on the ground that he was ineligible to such appointment by reason of the prohibition contained in the Constitution of Minnesota, article 4, section 9, which so far as material is as follows:

"No senator or representative shall, during the time for which he is elected, hold any office under the authority of the United States or the State of Minnesota, except that of postmaster."

It is contended that during the period of two years from and after his induction into office, a member of the legislature is ineligible to hold any other office save that of postmaster, and that such ineligibility cannot be overcome by resignation, or otherwise.

Although the question has long been deemed *res adjudicata* in this department, I determined, in view of its great public importance, to afford gentlemen an opportunity to be heard upon it, and accordingly provided a day for a hearing, at which the subject was thoroughly discussed in all its various lights.

Whenever the question has heretofore engaged the attention of the attorney general, whether as to elective or appointive offices, it has invariably been held that the prohibition of the constitution was designed merely to prevent one's holding another office during his incumbency of the office of senator or representative. In the two leading matters heretofore considered in this department—*In re Page* and *In re Gilman*—it was held that as to an elective officer the disability ceases upon resignation. The same doctrine has on several occasions been extended to appointive officers. The case of *Barnum vs. Gilman*, 27 Minn. 466, is relied upon as an authority in support of Mr. Sutton's claims. Strictly speaking, that case really decides that one not receiving a majority of votes cast for a given office has no such interest therein as entitles him to call in question his opponent's title thereto. What was said in that case as to the eligibility of the respondent was really *obiter*, and was so regarded by the chief justice, who for that reason refused to concur in the views expressed in the majority opinion. However, it cannot be denied that that case has quite generally been regarded as decisive of the question, and no doubt has greatly influenced the more recent views of this office.

I have on several occasions been constrained to adopt the views expressed in the earlier decisions of my predecessors, not so much because of my approval of the construction which had been placed upon the constitution as by force of the rule *stare decisis*. But in the matter of *Jones*, recently considered, I expressly stated that I should not hesitate, whenever the public interests might seem to require, to submit the question to the courts. It certainly cannot be said that the question is free from doubt, or that the reasoning of this office in prior cases will receive judicial sanction. Indeed it is somewhat significant to note the expressions of doubt with which both of the leading opinions above referred to are characterized. Thus *In re Page* it was said:

"Hence, whatever may be the rule as regards appointive offices, whether the precedents of a legislative and executive character heretofore established



in relation to them are correct or incorrect, it seems to me beyond reasonable controversy that the clause in question cannot be construed as limiting or in any manner restricting the people in their choice of elective officers or in voting for whomever they may deem best fitted and qualified to serve them in situations of public trust and confidence."

And *In re Gilman* it was said:

"I must admit that the reasoning of my predecessors on this question does not wholly satisfy my judgment,—an infirmity of the latter rather than any defect in the logic of the former,—and prior to examining the records of my office I was impressed with the idea that Mr. Gilman was ineligible to the office of lieutenant governor. I proceeded on the theory that the framers of the constitution meant just what the language used naturally imports, and that a member should not be elected to or hold any other office during the time for which he was elected; that the object of the constitution was to take away from members all temptation to convert the legislature into a hot-bed of political intrigue. Nevertheless, I feel bound by the decisions of the very able gentlemen who have preceded me in this office."

If the case of *Barnum vs. Gilman*, *supra*, is not to be regarded as decisive of the question, authority may elsewhere be found strongly militating against Mr. Sutton's eligibility. (*Ellis vs. Lennon*, 86 Mich. 468.)

There is seemingly a widespread sentiment, both within and without the ranks of the legal profession in this state, that the question of the proper construction of the provision of the constitution under consideration should be submitted to the courts, and the meaning of that provision definitely determined. While I am loth to subject Mr. Sutton to the expense and annoyance of the necessary litigation, I feel that I cannot properly disregard the wishes of so many of my fellow citizens and permit his claims to go unchallenged. Whatever the decision of the courts, it will dissipate doubt, allay discussion, and prove salutary to the public welfare to obtain an adjudication of the question.

I therefore decide to file the information.

H. W. CHILDS, Attorney General.

July 9, 1895.

182

**FIREMEN'S RELIEF ASSOCIATION—Certain questions considered touching the expenditure of relief funds.**

ATTORNEY GENERAL'S OFFICE.

Hon. M. D. Kenyon, Public Examiner,

Sir: In your communication of October 2d you set forth a copy of the by-laws of the Firemen's Relief Association of Duluth, wherein it is, among other things, provided that the property and funds of the association shall be divided into two separate and distinct funds, designated respectively the general fund and the special fund. To the first fund belongs all moneys heretofore or hereafter received from the state by the association and from which are to be paid "all expenses of the association and all accident benefits, sick benefits and death benefits to active members of the fire department of said state." To the second fund belongs all interest and moneys "received from every other source, except that belonging to the general fund as aforesaid," and from which are to be paid all premiums provided by the by-laws and all death benefits to non-active firemen.

It is further provided that the special fund may be replenished by the loan from the general fund, wherever it falls below \$5,000; that pensions of thirty dollars per month may be paid to members retiring after fifteen years' service and to members injured or disabled by accident or service; that to each active member a policy shall be issued providing for the payment of \$1,000 upon the death of the policy holder; that whenever a policy holder ceased to be a member the policy shall thereby become void and be surrendered; upon such surrender the holder, if he has been a member for a period

of ten years, becomes entitled to a like policy of the same amount; a person ceasing to be an active member may nevertheless retain his membership by paying his dues and assessments and complying with all the requirements of the by-laws of the association.

You inquire, in effect, whether the foregoing provisions of the by-laws contemplate such an expenditure of funds as is authorized by the general law under which such associations are formed.

The question is controlled, in my judgment, by the amendatory act of 1895 (chapter 73). That law contemplates the expenditure of the moneys in question in one of two methods:

1. By municipalities; and then for the following purposes:

(a) The support and relief of firemen injured or disabled while in the discharge of their duties.

(b) The equipment and maintenance of fire departments.

2. By fire department relief associations; and then to be expended as follows:

(a) For the support and relief of sick, injured and disabled firemen, their widows or orphans.

(b) For such other purposes as may be prescribed by the by-laws and constitution of said relief association, not inconsistent with the purpose of the act.

Before any such association shall be entitled to the payment of such moneys, the consent of the municipal authorities must first be obtained. It is made your duty, upon complaint properly filed with you, to ascertain by an examination of the books of the association whether the funds thereof are being diverted from their lawful purposes.

The only serious question is apparently the construction to be placed upon the words "other purposes" as above used.

It is evident that greater discretion is conferred upon such associations as to expenditures than is enjoyed by municipal authorities, as they are given authority to provide for the relief not only of those who become injured and disabled while in the line of duty but also of the sick and the widows and orphans of deceased members. In carrying out this feature of the law it must be held that the association enjoys a large discretion which should not be interfered with unless clearly in excess of authority. While the creation of the two funds as provided by the by-laws may seem artificial and unnecessary, I see no valid objection to it. The extent of the aid to be afforded in any case must be left to the sound discretion of the association; and it is a matter of slight, if any importance, from what fund the relief is afforded. The purposes of the act are both practical and benevolent. The aim is to secure an efficient fire service and to provide relief in the cases named, but the relief cannot properly be based upon any other grounds than disability arising either through sickness, injury, orphanage or widowhood. I find no authority for the granting of pensions or the issuance of policies upon the conditions expressed in the by-laws. It is not length of service but actual disability which entitles the member to support, and in so far as the by-laws violate this feature of the law they are, in my judgment, unlawful. Such associations are in no sense insurance companies, but rather trustees for disbursing the bounty of the state.

I see no reason why interest accumulated upon the investments of funds heretofore made shall not follow the funds. They are alike impressed with the same character.

No part of such funds can properly be employed in the payment of the salaries of any of the officers of such an association. Such an expenditure would manifestly be inconsistent with the purpose of the act.

H. W. CHILDS, Attorney General.

Nov. 26, 1895.

**CUSTODIAN OF BILLS AND STATEMENTS PERTAINING TO PUBLIC MATTERS**—All claims and accounts which are in the nature of vouchers should be kept in the office of the state auditor. The secretary of state is the custodian of contracts pertaining to the public printing.

ATTORNEY GENERAL'S OFFICE.

Hon. Albert Berg, Secretary of State,

Sir: You request my views as to the proper place of custody of all bills, statements, accounts, printing contracts, etc., of whatever nature, contemplated by "the printing and binding law."

Unfortunately, the statutes are somewhat confused upon the question presented.

It is provided that, "All accounts and claims against the state, which are by law directed to be paid out of the treasury of the state, shall be presented to the auditor, who shall examine and adjust the same, and issue warrants, payable at the state treasury," etc. (Gen. Stat. 1894, sec. 321.)

It is also provided that, "All accounts filed for printing binding and stationery shall be carefully entered of record by the printing expert, and if any errors are found in such accounts the printing expert shall make the necessary corrections before entering the same. When the account is adjusted he shall certify the same to the secretary of state, who, on receipt thereof, shall give his order for the amount due upon the state auditor, designating the fund from which the same shall be paid. And only upon presentation of this order with the voucher attached, the state auditor shall draw his warrant upon the state treasurer for the amount thereof." (Id. sec. 282.)

A commission is created by law composed of the secretary of state, state treasurer, and state auditor. (Sec. 259.) The commission is authorized to appoint a printing expert, whose duties are fully enumerated. (Sec. 280.) Among such duties, are the following: To take charge of all the printing and binding required to be done for the several departments of government; to receive the proper orders for the same, and to have the same properly executed according to law; to keep a record of all work ordered from the several contractors; to examine all accounts of printing and binding, and to adjust the same in accordance with law and the rulings of the commission; to keep a set of books, etc. Although the printing expert has heretofore occupied desk room in the office of the secretary of state, I find no statute requiring him to office in that department. No doubt it conduces to the dispatch of business for him to be thus located, and, without question, it is competent for the board to direct in such regard.

In view of the foregoing provisions, I am of the opinion that all claims and accounts which are in the nature of vouchers should be kept in the office of the state auditor. I see no escape from this view when regard is had to the statutory requirement that the warrant of the state auditor is to be drawn "only upon presentation of this order, with the voucher attached." This harmonizes with the manifest intent of section 321; and furnishes to the state auditor evidence on which to determine the propriety of either issuing or withholding his warrant. His duties in the issuance of warrants are not merely perfunctory; he is to issue them only when the law authorizes it.

As the secretary of state is required to give his order for an amount found due on any contract pertaining to the public printing, it may fairly be held that he is the proper custodian of the same. This appears to have been the practical construction of the two departments for a great period of time, and, while, it does not accord with what I regard, strictly speaking, the real intent of the statute, it may now properly be adopted as the correct practice.

H. W. CHILDS, Attorney General.

Oct. 2, 1895.



## INDEX TO OPINIONS.

Note.—References are to numbers of opinions.

**BUILDING AND LOAN ASSOCIATIONS—**

Certificate of stock.....	1
Admission fee .....	2
Excess dividend—Remedy .....	3
Contract .....	4

**CARING FOR THE POOR—**

Importing paupers .....	5
Residence of pauper.....	6

**COUNTIES—****I.—MISCELLANEOUS.**

Allowance of claims.....	7
Organization .....	8
Change of boundary lines.....	9
Keeping prisoners .....	10
County seat—Removal .....	11
Legal notices .....	12

**II.—COUNTY ATTORNEY.**

Vacancy .....	13
Expenses .....	14

**III.—COUNTY COMMISSIONERS.**

Authority to compromise judgment.....	15
Authority—Highways .....	16
Removal of county seat. ....	17
Contract for supplies.....	18
Unorganized—Power of commissioners.....	19
Abstracts .....	20
Compensation .....	21, 22
Compensation in Blue Earth county.....	23

**IV.—CLERK OF COURT.**

Clerk hire .....	24
Fees .....	25-27

**V.—COURT COMMISSIONER.**

Unorganized County .....	28
Fees .....	29

**VI.—DISTRICT JUDGES.**

Compensation .....	30
--------------------	----

**VII.—SHERIFF.**

Fees .....	31-33
Residence .....	34



## VIII.—COUNTY SURVEYOR.

County surveys .....	35
<b>CORPORATIONS—</b>	
Consolidation—Fees .....	36
Approval of articles by attorney general.....	37
<b>EDUCATION AND SCHOOLS—</b>	
School district—Freeholder as petitioner.....	38
Apportionment .....	39
School district .....	40
Independent district—Vocal music.....	41
Admission—Portion of year.....	42
Compensation—Assistants to county superintendent.....	43
Lord's Prayer .....	44
Normal schools .....	45
School building .....	46
Certificate .....	47
School district—Garnishee .....	48
Teaching of physiology.....	49
Temperance hygiene .....	50
Independent district—Hygiene .....	51
Teaching in foreign language.....	52
Women vote .....	53, 54
Permanent school fund.....	55
Evening schools—Admission of adults.....	56
Petition—Amendment .....	57
Removal of incompetent teacher.....	58
Text-book fund .....	59
Taxation .....	60
Salary of superintendent.....	61
Bonds—Limitation of issue.....	62
High schools .....	63
Statute—Repeal—Examination of teachers.....	64
<b>ELECTIONS—</b>	
Members of legislature—Contest.....	65
Primary elections .....	66–68
General election in township.....	67
<b>GAME AND FISH LAW—</b>	
Disposition of fines.....	69
Legislative oversight—Hunting with dogs.....	70
<b>HOSPITALS FOR THE INSANE—</b>	
Fourth hospital for insane—Plans and specifications—Architect....	71
Fees of court commissioner.....	72
Custody by relatives.....	73
Inebriates—Guardianship .....	74
Commitment .....	75
Fees for commitment.....	76
Custodial and medical relations.....	77
Control of hospitals.....	78
<b>INCOMPATIBILITY—</b>	
County commissioner—Appraiser of public lands.....	79
<b>INTOXICATING LIQUORS—</b>	
Local option—Manufacturers .....	80
Liquor licenses .....	81
No license .....	82
Refundment .....	83
Government license .....	84
Reinstating forfeited license.....	85
Local option .....	86
Revocation of license.....	87

<b>INSURANCE—</b>	
Automatic sprinklers .....	88
Rider—Co-insurance .....	89
Construction of statute.....	90
Rider—Pro rata clause.....	91
Retaliatory law .....	92
Riders .....	93
Unauthorized foreign companies.....	94
Salvage corps .....	95
Foreign insurance company.....	96
Contingent safety fund.....	97
Accident insurance .....	98
Contract .....	99
Construction of law.....	100
<b>LEGAL NEWSPAPERS—</b>	
Omission on legal holiday.....	101
Failure to deliver required number.....	102
<b>LEGISLATION—</b>	
School text-book fund.....	103
Appropriation—Drainage .....	104
Classification .....	105
<b>NOXIOUS WEEDS—</b>	
Expenses—Weed agent .....	106
Weed agent—Term—Railroad lands.....	107
<b>OFFICES—</b>	
Dental examiners .....	108
Railroad and warehouse commission.....	109
Surveyor general—Fees .....	110, 111
Court reporter—Compensation .....	112
District judge .....	113
Referee's fees .....	114
Eligibility .....	115
Superintendent of schools.....	116
Game and fish commission—Vacancy.....	117
Boiler inspector—Reimbursement .....	118
<b>PUBLIC BUILDINGS—</b>	
State capitol—Ownership of designs.....	119
<b>PUBLIC HEALTH—</b>	
Destruction of animals—Appraisal.....	120
Health officer—Expenses .....	121
<b>PUBLIC LANDS—</b>	
Hastings & Dakota Railway grant.....	122
Grants—Selections .....	123
Grant to Duluth & Iron Range Railroad Company.....	124
Interest .....	125
Sioux City & St. Paul grant.....	126
<b>PUBLIC PRINTING—</b>	
Contract—State horticultural society.....	127
Geological survey .....	128
Deputy state treasurer—Receiving bids.....	129
<b>RAILROAD AND WAREHOUSE COMMISSION—</b>	
Gross earnings .....	130
Removal of station.....	131
<b>ROADS AND BRIDGES—</b>	
Town line roads.....	132
Bridges .....	133
Description .....	134

<b>STATE BOARD OF MEDICAL EXAMINERS—</b>	
Exempts .....	135
<b>STATE PRISON—</b>	
Breach of pardon.....	136
Contract .....	137
Term of sentence.....	138
<b>STATE TRAINING SCHOOL.....</b>	139
<b>STATE REFORMATORY—</b>	
Escape .....	140
<b>SCHOOL FOR FEEBLE-MINDED—</b>	
Jurisdiction over inmate.....	141
Residence .....	142
<b>STATE OFFICERS—</b>	
Secretary of state—Census statistics—Publication.....	143
State auditor's warrant.....	144
<b>STATUTE—</b>	
Construction .....	145
Construction—Organized county .....	146
Constitutionality .....	147
<b>TAXATION—</b>	
Refundment .....	148
Notice—Repeal .....	149
Mining corporations .....	150
Gross earnings—Rents .....	151
Seed grain .....	152
Road tax .....	153
Parsonage and sheds for horses.....	154
Personal property national building associations—Real estate Nor- wegian Young Men's Christian Association of Minneapolis.....	155
Mortgages .....	156
Forfeited tax sale.....	157-162
Listing by auditor.....	158
Authority of state auditor.....	159
Abatement .....	160
Publication—Description .....	161
Equalization .....	163
<b>TOWNSHIPS—</b>	
Town clerk—Compensation .....	164
Ditches—Expenses .....	165
Meetings of township board.....	166
Fees .....	167
Supervisors—Fees .....	168
Contagious diseases—Expenses .....	169
Formation—Indebtedness .....	170
Herd law .....	171
<b>VILLAGES—</b>	
Fire department .....	172
Reads .....	173
<b>MISCELLANEOUS—</b>	
Logs—Scaling .....	174
Labor bureaus .....	175
Steam boilers—Inspection .....	176
Convicts as witnesses.....	177
Public parks .....	178
Financial statement .....	179
Storage companies .....	180
Quo warranto—State boiler inspector.....	181
Firemen's relief association.....	182
Custodian of bills and statements.....	183

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## APPENDIX.

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SEVENTH BIENNIAL REPORT  
OF THE  
STATE BOARD  
OF  
CORRECTIONS AND CHARITIES  
TO THE  
LEGISLATURE OF MINNESOTA.

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FOR THE BIENNIAL PERIOD ENDING JULY 31, 1896.

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ST. PAUL:  
PIONEER PRESS COMPANY,  
STATE PRINTERS.  
1897.

## AN ACT

### TO ESTABLISH A STATE BOARD OF CORRECTIONS AND CHARITIES FOR THE STATE OF MINNESOTA.

*Be it enacted by the Legislature of the State of Minnesota:*

Section 1. The governor, with the advice and consent of the senate, shall appoint six (6) persons, not more than three (3) of whom shall be from the same political party, who shall constitute a state board of corrections and charities, to serve without compensation, their traveling expenses only being defrayed by the state; two (2) of whom, as indicated by the governor upon their appointment, shall serve for one (1) year, two (2) for two (2) years, and two (2) for three (3) years; and upon the expiration of the term of each, his place, and that of his successor, shall, in like manner, be filled for the term of three (3) years. The governor shall be *ex-officio* a member of said board and the president thereof. Appointments to fill vacancies caused by death, resignation or removal before the expiration of such terms, may be made for the residue of terms in the same manner as original appointments.

Sec. 2. The State Board of Corrections and Charities shall be provided with a suitable room in the state house. Regular meetings of the board shall be held quarterly, or oftener if required. They may make such rules and orders for the regulation of their own proceedings as they may deem necessary. They shall investigate the whole system of public charities and correctional institutions of the state, examine into the condition and management thereof, especially of prisons, jails, infirmaries, public hospitals and asylums; and the officers in charge of all such institutions shall furnish to the board, on their request, such information and statistics as they may require; and to secure accuracy, uniformity and completeness in such statistics, the board may prescribe such forms of report and registration as they may deem essential; and all plans for new jails, lockups, and infirmaries shall, before the adoption of the same by the county or municipal authorities, be submitted to said board for suggestion and criticism. The governor, in his discretion, may, at any time, order an investigation by the board, or by a committee of its members, of the management of any penal, reformatory or charitable institution of the state; and said board, or committee, in making any such investigation, shall have power to send for persons and papers, and to administer oaths and affirmations; and the report of such investigation, with the testimony, shall be made to the governor, and shall be submitted by him, with his suggestions, to the legislature.



Sec. 3. The said board may appoint a secretary and a clerk, whose salaries they may establish and determine, and there is hereby appropriated, from any funds in the state treasury not otherwise appropriated, for the expenses of the said board, the sum of five thousand (5,000) dollars, or so much thereof as may be necessary for each year ending July thirty-first (31st), one thousand eight hundred and eighty-eight (1888), and July thirty-first (31st), one thousand eight hundred and eighty-nine (1889). All accounts and expenditures shall be certified as may be provided by the board, and shall be paid by the state treasurer upon an order from the auditor of state.

Sec. 4. The State Board of Corrections and Charities shall, every two (2) years, make a full report of all their doings during that period, stating in detail all expenses incurred, and showing the actual condition of all the state and county institutions, and making such suggestions as they may deem advisable, of which report two thousand (2,000) copies shall be printed for the use of the legislature, and one thousand (1,000) copies for the use of the board.

Sec. 5. Whenever the governor shall deem it advisable and expedient to obtain information in respect to the condition and practical workings of charitable, penal, pauper, and reformatory institutions in other states, he may authorize or designate any member or members of said board, or the secretary thereof, to visit such institutions in operation in other states; and by personal inspection to carefully observe and report to said board on all such matters relating to the conduct and management thereof as may be deemed to be interesting, useful, and of value to be understood in the government and discipline of similar institutions in this state.

Sec. 6. No member of said board, or their secretary, shall be either directly or indirectly interested in any contract for building, repairing, or furnishing any institution, poorhouse or jail which by this act they are authorized to visit and inspect; nor shall any officer of such institution, jail or poorhouse be eligible to appointment on the board hereby created.

Sec. 7. This act shall take effect and be in force from and after its passage.

Approved March 2, 1883.

Amended March 3, 1885.

Amended March 5, 1887.

## STATISTICS OF STATE CORRECTIONAL

	HOSPITALS FOR INSANE.			Total Insane.	Soldiers' Home at Minneapolis.
	Hospital at St. Peter.	Hospital at Rochester.	Hospital at Fergus Falls.		
GROWTH OF THE POPULATION.					
Number of Inmates on Hand					
Oct. 31, 1887.....	950	691	.....	1,641	.....
Oct. 31, 1888.....	953	820	.....	1,773	60
Oct. 31, 1889.....	969	867	.....	1,836	118
Oct. 31, 1890.....	913	970	94	1,977	124
Oct. 31, 1891.....	968	1,065	121	2,154	117
Oct. 31, 1892.....	939	1,081	249	2,269	158
Oct. 31, 1893.....	1,004	1,107	345	2,456	253
Oct. 31, 1894.....	940	1,131	536	2,607	315
Oct. 31, 1895.....	944	1,114	741	2,799	303
Oct. 31, 1896.....	1,005	1,163	802	2,970	336
AVERAGE NUMBER OF INMATES.					
Year ending Oct. 31, 1893.....	979	1,110	289	2,378	199
Year ending Oct. 31, 1894.....	936	1,115	491	2,542	288
Year ending Oct. 31, 1895.....	969	1,147	608	2,724	321
Year ending Oct. 31, 1896.....	983	1,139	776	2,898	313
PER CAPITA STATEMENT.					
Net Expense per Inmate.					
Year ending Oct. 31, 1893.....	\$191	\$152	\$252	\$180	\$258
Year ending Oct. 31, 1894.....	186	163	247	187	213
Year ending Oct. 31, 1895.....	185	153	230	181	184
Year ending Oct. 31, 1896.....	185	165	200	181	223
COST OF FOOD.					
For Each Day's Board Including Employees.					
For year ending Oct. 31, 1893.....	\$0.117	\$0.102	\$0.122	\$0.111	\$0.187
For year ending Oct. 31, 1894.....	.118	.10	.123	.111	.174
For year ending Oct. 31, 1895.....	.113	.101	.112	.107	.16
For year ending Oct. 31, 1896.....	.101	.098	.10	.10	.151
Flour, per barrel.....	\$2.14	\$2.50	\$2.23	\$2.33	\$3.02
Butter, per pound.....	.149	.138	.13	.13	.179
Eggs, per dozen.....	.088	.093	.092	.089	.113
Meats, per pound.....	d .057	d .054	.049	.054	.077
Coffee, per pound.....	.215	.192	.198	.203	.255
Sugar, per pound.....	.046	.05	.049	.048	.05
Tea, per pound.....	.165	.153	.133	.153	.....

a Includes, respectively, 102, 80, 33 and 23 United States prisoners from other states.

b Averages based on number of pupils during school year.

## AND CHARITABLE INSTITUTIONS.

INSTITUTE FOR DEFECTIVES AT FARIBAULT.			School for Dependent Children at Owatonna.	CORRECTIONAL INSTITUTIONS.			Totals.
School for the Deaf.	School for the Blind.	School for the Feeble- Minded.		State Train- ing School at Red Wing.	Reforma- tory at St. Cloud.	Prison at Stillwater.	
160	44	158	51	238	.....	418	2,710
172	47	181	88	253	.....	403	2,977
182	56	261	97	279	79	355	3,263
197	48	310	90	279	123	312	3,460
206	56	307	135	291	120	305	3,691
194	51	330	142	291	117	314	3,866
219	55	333	168	313	135	a430	4,362
230	60	425	177	344	122	a509	4,789
205	62	448	167	366	126	a438	4,914
218	59	492	192	372	137	a464	5,240
b205	b53	318	145	305	143	358	4,036
b221	b56	366	173	326	132	488	4,519
b229	b58	428	188	362	119	494	4,843
b204	b64	448	177	368	134	458	4,994
b \$245	b \$326	\$186	\$201	\$158	\$269	\$150	\$193
b 194	b 285	188	179	151	349	139	190
b 198	b 271	185	202	135	291	136	182
b 214	b 294	177	191	148	319	136	186
\$0.118	\$0.138	\$0.093	\$0.088	\$0.086	\$0.111	\$0.124	\$0.112
.123	.134	.098	.081	.077	.12	.108	.111
.115	.14	.098	.082	.083	.127	.116	.109
.109	.136	.093	.079	.072	.104	.103	.10
\$3.40	\$3.05	\$3.25	\$3.00	\$3.51	\$2.60	\$2.60	2 .63
.157	.156	.151	.185	.145	.155	.095	.143
.107	.11	.10	.094	.103	.094	.101	.13
.07	.07	.071	.065	.055	.045	.054	c .058
.217	.201	.20	.226	.184	.295	.161	.203
.046	.045	.043	.05	.046	.047	.045	.047
.....	.233	.215	.31	.20	.....	.192	.158

c Average, excluding St. Peter and Rochester hospitals.

d Beef on hoof averaged at half live-weight prices.



## PAUPER ENUMERATION, JUNE, 1896.

COUNTIES.	Number families or cases.	Boarded in poor-house or elsewhere.	Received relief without board.	Received medical relief only.	Total number persons included.	Ratio; (Census of 1895.)	Total number paupers June, 1896.	Ratio; (Census of 1895.)
Aitkin.....	5	4	4	1	9	1,723	4	766
Anoka.....	37	8	127	.....	135	12,074	141	12,610
Becker.....	26	6	53	4	63	4,590	106	9,591
Benton.....	12	2	32	1	35	4,491	52	6,671
Big Stone.....	8	4	11	.....	15	2,006	12	1,594
Blue Earth.....	73	20	189	3	212	6,564	192	5,945
Brown.....	39	4	74	1	79	4,286	98	5,317
Carlton.....	9	2	28	1	31	4,157	48	6,436
Carver.....	16	8	21	.....	29	1,658	30	1,708
Cass.....	3	1	9	1	11	3,212	23	6,715
Chippewa.....	13	7	16	3	26	2,406	36	3,332
Chisago.....	43	8	97	.....	105	8,004	102	7,776
Clay.....	17	5	38	.....	43	2,837	40	2,640
Cook.....	2	.....	7	.....	7	16,393	8	18,735
Cottonwood.....	7	3	13	.....	21	2,061	41	4,034
Crow Wing.....	10	3	21	.....	24	2,076	25	2,162
Dakota.....	45	18	70	a 3	91	4,263	121	5,668
Dodge.....	15	9	16	.....	25	1,960	32	2,509
Douglas.....	16	6	38	.....	44	2,597	69	4,073
Faribault.....	23	5	20	.....	25	1,241	22	1,093
Fillmore.....	13	17	37	1	55	1,923	60	2,098
Freeborn.....	10	4	19	.....	23	1,088	23	1,088
Goodhue.....	122	51	265	a 5	321	9,948	289	8,956
Grant.....	b 9	4	18	.....	22	2,755	22	2,755
Houston.....	16	12	18	.....	30	1,917	39	2,493
Hubbard.....	1	1	3	.....	4	1,635	49	20,039
Isanti.....	16	.....	30	.....	30	2,942	36	3,531
Itasca.....	13	13	.....	.....	13	3,277	16	4,033
Jackson.....	13	4	47	.....	51	4,138	39	3,142
Kanabec.....	9	1	26	.....	27	9,950	23	8,474
Kandiyohi.....	21	.....	48	.....	48	2,940	62	3,798
Kitson.....	11	4	19	1	24	3,816	25	3,976
Lac qui Parle.....	19	5	52	4	61	4,811	70	5,540
Lake.....	a 4	2	8	.....	10	4,523	9	4,070
Le Sueur.....	31	13	57	.....	80	3,532	67	3,203
Lincoln.....	4	2	14	.....	16	2,228	8	1,112
Lyon.....	10	8	5	.....	13	1,046	42	3,380
McLeod.....	20	4	43	.....	47	456	45	2,352
Marshall.....	14	4	39	.....	43	3,562	47	3,893
Martin.....	8	3	24	1	28	2,003	41	2,932
Meeker.....	29	4	73	1	78	4,486	74	4,355
Mille Lacs.....	5	.....	24	.....	24	4,679	17	3,314
Morrison.....	30	12	48	3	63	3,288	75	3,914
Mower.....	15	6	38	.....	44	2,042	38	1,764
Murray.....	6	6	.....	.....	6	644	41	4,398
Nicollet.....	39	12	85	a 2	99	6,923	89	6,224
Nobles.....	3	.....	10	.....	10	840	35	2,940
Norman.....	19	12	20	.....	32	2,376	38	2,821
Olmsted.....	34	8	51	1	60	2,689	112	5,019
Otter Tail.....	57	20	114	1	135	3,422	265	6,717
Pine.....	4	1	7	.....	8	926	25	2,896
Pipestone.....	a 6	12	17	.....	18	2,530	16	2,249
Polk.....	44	12	98	2	112	2,855	126	3,213
Pope.....	7	2	19	1	22	1,895	22	1,895
Redwood.....	6	5	5	.....	10	739	12	887
Renville.....	10	3	33	.....	36	1,650	30	1,375
Rice.....	79	15	175	1	191	7,117	220	8,198
Rock.....	b 5	3	7	.....	10	1,163	50	5,816
Scott.....	61	22	145	1	168	11,172	158	10,509
Sherburne.....	13	3	36	.....	39	5,464	46	6,445
Sibley.....	10	2	27	1	30	1,825	32	1,947
Stearns.....	41	12	96	1	109	2,730	110	2,755
Steele.....	a 16	6	24	.....	30	1,899	30	1,899
Stevens.....	6	4	6	.....	10	1,528	30	4,585
Swift.....	7	2	17	.....	19	1,604	26	2,195
Todd.....	37	10	97	2	109	6,167	109	6,167
Traverse.....	5	3	16	.....	19	3,133	27	4,452
Wabasha.....	38	14	59	1	74	3,981	102	5,488
Wadena.....	29	5	75	.....	80	13,166	101	16,622
Waseca.....	19	6	37	.....	43	2,923	41	2,787
Washington.....	82	11	205	7	223	8,134	282	10,285
Watsonwan.....	13	6	33	.....	39	3,800	43	4,155
Wilkin.....	4	.....	20	.....	20	3,125	26	4,063
Winona.....	79	15	155	.....	170	4,309	190	4,844
Wright.....	19	6	39	2	47	1,700	39	1,410
Yell'w Medicine	11	9	5	1	15	1,192	21	1,669
Totals.....	1,676	533	3,587	58	4,178	3,695	4,932	4,362
Hennepin.....	771	178	1,215	a300	1,693	7,773	1,598	7,337
Ramsey.....	593	261	435	216	912	6,182	933	6,324
St. Louis.....	399	99	944	41	1,084	13,796	1,102	14,025
Grand totals	3,439	1,071	6,181	615	7,867	4,996	8,565	5,439

a Estimated. b Partly estimated.

SEVENTH BIENNIAL REPORT  
OF THE  
STATE BOARD OF CORRECTIONS AND CHARITIES.

---

OFFICE OF THE STATE BOARD OF }  
CORRECTIONS AND CHARITIES. }

ST. PAUL, MINN., December, 1896.

*To the Legislature of the State of Minnesota:*

The statute requires that "the State Board of Corrections and Charities shall, every two years, make a full report of all their doings during that period, stating in detail all expenses incurred, showing the actual condition of all the state and county institutions, and making such suggestions as they may deem advisable." Accordingly we have the honor to submit our seventh biennial report.

RECOMMENDATIONS TO THE LEGISLATURE.

This board has been accustomed to make recommendations to the legislature only on a unanimous agreement of its members, preferring delay to any risk of hasty action, and believing that a wise conservatism should control the action of an advisory board; and its recommendations have always received generous consideration by the legislature.

The board offered to the legislature of 1885 nine recommendations, of which eight have been adopted; to the legislature of 1887, six additional recommendations, of which four have been adopted and a fifth partially adopted; to the legislature of 1889, fifteen recommendations, of which nine were adopted; to the legislature of 1891, sixteen recommendations, of which four were adopted and two partially adopted; to the legislature of 1893, eight recommendations, of which five were adopted; to the legislature of 1895, eight recommendations, of which five were adopted, one partially

adopted and two are pending; making a grand total in twelve years of sixty-three recommendations, of which thirty-five have been adopted by the legislature and four partially adopted; six are still pending; five have been rejected and thirteen have been withdrawn.

#### FORMER RECOMMENDATIONS RENEWED.

We respectfully renew the following recommendations made in former reports:

1. That sentences to city prisons or workhouses and county jails for a shorter period than ten days be prohibited, and that provisions be made by law for cumulative sentences to workhouses, increasing with each repeated conviction for the same offense. (Report of 1886, p. 44; report of 1888, p. 14; reports of 1890, p. 10.)

There is universal complaint from officers of city workhouses that five and ten day sentences demoralize the prison and do no good to the prisoner.

2. That it be provided by law that no board of trustees or managers of any state correctional or charitable institution shall have a majority of its members resident in the county in which the institution under its charge is located. (Report of 1888, p. 33; report of 1890, p. 10; report of 1894, p. 10.) This recommendation is now amended to read as follows: "That it be provided by law that no board of trustees or managers of any state correctional or charitable institution shall have more than one of its members resident in the county in which the institution under its charge is located."

3. That all future appropriations for buildings at the state reformatory be made with the proviso that they shall be constructed, as far as possible, of granite from the reformatory quarry; and that the labor of the inmates shall be utilized to the utmost possible degree in their erection.

4. That the state provide a residence for the superintendent of each state institution separate from the main institution building. (Report of 1894, p. 12.)

This plan has already been adopted at the state prison, the state reformatory, the school for the blind and the school for the feeble-minded. At the state public school a separate residence is provided for the state agent. In each case the plan has been found satisfactory and economical. At the St. Peter hospital, for instance, the portion of the building now occupied by the superintendent's family could be readily converted into an admirable receiving ward for new patients.



5. That liberal appropriations be granted for providing industrial training for the children in the state training school at Red Wing. (Report of 1894, p. 20.)

This school is well equipped in all departments, except that of industrial training, which is, in fact, one of the most important branches of the work of the school, but in that department the school is greatly deficient.

6. That in every case where appropriations are made for new buildings they be accompanied by a separate and distinct appropriation for the necessary fixtures and furniture. (Report of 1890, p. 64.)

NOTE.—In his message to the legislature of 1897, Gov. David M. Clough says: "In past years estimates have been made to the legislature of the cost of erecting new buildings for various state institutions and appropriations have been made on the basis of those estimates. Later, when the authorities have proceeded to construct the structures authorized by law, the appropriations are found barely sufficient to erect the buildings, but not properly to equip the same. The equipment must then await the action of the next session of the legislature or be paid for out of the fund for current expenses, thus seriously interfering with the operation of the institutions as contemplated by the law making power. This opens the way for suspicion of bad faith or poor management. Possibly this condition cannot always be prevented, but in the interest of sound business management, it should be guarded against as fully as practicable. To this end I recommend that state institutions asking for appropriations for new buildings be required to submit detailed estimates for the same, always including proper equipments."

7. That provision be made for the criminal and dangerous insane at the fourth hospital. (Report of 1890, p. 24.)

### THE STATE INSTITUTIONS.

There has been no increase in the number of state institutions subject to the supervision of this board. These are three state hospitals for insane, at St. Peter, Rochester and Fergus Falls; the Soldiers' Home, at Minnehaha Falls; the three institutions constituting the Minnesota Institute for Defectives, namely, the School for the Deaf, the School for the Blind and the School for Feeble-Minded; the School for Dependent Children, at Owatonna; the State Reform School, at Red Wing; the State Reformatory, at St. Cloud; and the State Prison, at Stillwater.

The Minnesota state institutions are believed to rank with the best institutions of their class in the United States. Minnesota has a more complete system of public institutions than any other state in the Union of like population, but it has no separate institutions for delinquent girls or criminal women. Separate training schools for delinquent girls exist in nearly all of the Northern States, and separate reformatories for women have been established in Massachusetts, New York and Indiana. The state re-

formatory boards asks for \$25,000 to erect a building for women in connection with that institution. We are of the opinion that it would not be wise to provide for the erection of such a building in connection with any existing institution, for the reason that it would probably stand in the way of the establishment of a suitable institution when the proper time comes therefor.

#### THE STATE HOSPITALS FOR INSANE.

In our last biennial report we estimated that the number of insane patients would increase during the biennial period at the rate of  $7\frac{1}{2}$  per cent, and that we should have Sept. 30, 1895, 2,805 patients, and Sept. 30, 1896, 3,015 patients. The rate of increase has been slightly less than our estimate. We had in the state hospitals for insane Sept. 30, 1895, 2,796 patients (9 less than our estimate), and Sept. 30, 1896, 2,962 patients (53 less than our estimate).

The number of patients on hand Nov. 30, 1894, was 2,617; Nov. 30, 1895, 2,810; Nov. 30, 1896, 2,998; an increase during the two years of 14.6 per cent. Should the number of patients increase at the same rate during the coming two years, we shall have Nov. 30, 1897, 3,210 patients, and Nov. 30, 1898, 3,436 patients.

We have now 3,000 patients in the three hospitals for insane, of which the present normal capacity is not more than 2,700. The present overcrowding at the St. Peter and the Rochester hospitals saves money to the state in two ways; first, it reduces the per capita cost; and, second, it reduces the number of patients by increasing the mortality rate; but this overcrowding is a cruelty to the unfortunate patients. A visit to the wards of the St. Peter hospital or the Rochester hospital at night will convince any observer that the accommodations for the insane should be increased or the number of patients should be reduced. For several years past the available accommodations have been from 200 to 400 behind the insane population. We believe that the considerations of humanity call for such an increase of accommodations as will put a stop to the present overcrowding.

#### THE WISCONSIN SYSTEM OF CARING FOR THE INSANE.

The State of Wisconsin has a unique system of caring for its insane population. This system has now been in operation for fifteen years and has attracted much attention.

In the State of Wisconsin there is a charge back upon the counties of \$1.50 per week for each patient maintained in the state hospitals for insane, of which there are two, with a united capacity of about 1,200 patients.

In 1881 it became apparent that additional provision must be made for the insane. Instead of building a new state hospital or enlarging the old ones, the state passed a law which read as follows: "Whenever it shall appear to the state board of charities and reform that insufficient provision has been made for the care and support of the insane in the state hospitals and county asylums previously established, counties which shall care for their own chronic insane in such manner as the state board shall prescribe on the verified certificate of said board to the secretary of state, shall receive the sum of \$1.50 per week for each person so cared for or supported."

The counties caring for their own insane not only receive \$1.50 per week from the state, but save \$1.50 per week which they would have been obliged to pay into the state treasury for the care of their insane in state hospitals, making a total saving to the county of three dollars per week for each patient.

Under this law about thirty county asylums have been built, affording accommodations for about 3,000 patients. These county asylums have an average capacity of about 100 patients, and each of them is located on a large farm which affords suitable employment for the inmates.

Citizens of other states who investigated the Wisconsin plan six or eight years ago admitted that it was efficient, satisfactory, and economical. It was felt, however, that its efficiency depended largely upon the close supervision exercised by the state board of charities and reform, which held the purse strings, and it was feared by those who had seen the vicious operation of the county system in other states that the Wisconsin system would ultimately fall into similar abuses.

After fifteen years' experience, however, the Wisconsin plan is apparently operating as efficiently as ever, though the supervision of the county asylums is now vested in the state board of control, who are also trustees of the state charitable and correctional institutions. Hon. A. O. Wright, formerly secretary of the state board of charities and reform, has recently examined the county asylums of the state and reports their efficiency unimpaired.

The claims for the Wisconsin system are the following: First—Economy. The average cost per inmate in the county asylums for the year ending Sept. 30, 1894, was \$1.74 per week, or \$95.70 per year, as against \$200 per capita in the state hospitals for insane. Second—More natural conditions. It is claimed that life in a small institution with a capacity of 100 is much more natural and



happy than in a large institution where the patients are massed together, and that individual treatment can be much better secured than in the larger institutions.

The county system of caring for the insane has proved a failure in every state except Wisconsin. It has been abandoned in the State of New York within the past three years. Gross abuses in the county care of the insane have been discovered in Pennsylvania, New York, Ohio, Indiana, Illinois, and other states where it has prevailed, and the county care of the insane is now declared to be very unsatisfactory in several of those states.

In the report of this board to the legislature of 1889 (third biennial report, p. 18) will be found a statement of the views of this board on that subject at that time.

#### THE ST. PETER STATE HOSPITAL.

At the St. Peter State Hospital the improved standard of medical care has been maintained. Every effort is made for the recovery of recent cases. The appropriations made for the improvement of the plumbing have been faithfully applied. Four large ventilating shafts have been constructed, each about 4x12 feet. These shafts carry water pipes, steam pipes and soil pipes and serve for ventilating purposes. All drain pipes from sinks, bath tubs, closets, etc., pass directly through the wall and are trapped in the ventilation shaft, enabling the engineer to make repairs without entering the wards, and preventing damage to the plumbing by patients. This system of plumbing is the best that we have ever seen. The means available have not permitted the completion of the system. There is a great lack of ventilation in some parts of the institution, especially in the north and south detached wards, where the ventilation of the dormitories by night is abominable. The buildings are in need of elaborate repairs, especially on the women's side. The floors are old and dilapidated, the plastering is falling off, the attics are cold and drafty, the foundations have been damaged by water and frost.

The board of trustees ask for an appropriation to build two congregate dining halls, remove the kitchen and bakery from the cellars which they now occupy, change the laundry, build a carpenter shop, build covered ways from the new kitchen to the congregate dining wards, raise the roof of the north detached ward, etc. We print elsewhere the superintendent's statement with reference to the need of these improvements. There is no question that the condition of the institution at the present time is unsanitary and that extensive changes and repairs are necessary.



The lack of employment for the patients during the winter months is a great evil. It is exceedingly depressing to visit the wards and to see hundreds of poor creatures stagnating for lack of some congenial employment. Light industries, such as brushmaking, broommaking, basketmaking, carpet weaving, shoemaking, etc., could be established by a moderate outlay and could probably be made to pay their own expenses.

#### THE ROCHESTER STATE HOSPITAL.

The Rochester State Hospital, like that of St. Peter, is seriously overcrowded, containing at the present time nearly 1,200 patients in quarters that cannot suitably accommodate more than 1,000. The condition of the institution has been much improved by the completion of the domestic building, which contains an admirable kitchen, congregate dining room for patents and employes, and a fine amusement hall.

The nurses' training school has done much to improve the service of the hospital, and efforts for further improvements are continuous. The introduction of internes has proven a satisfactory addition to the medical force, and gives opportunity to test the fitness of young physicians for this specialty.

The great need of the institution is suitable employment for the patients, both men and women, during the long and tedious months of winter.

The inebriate department of this institution is an excrescence. If the state is to maintain an inebriate asylum it should be a separate and distinct institution. Inebriates are not insane, and their presence in a hospital for insane is injurious to both classes of patients. The room occupied by inebriates is needed for insane patients.

#### THE FERGUS FALLS STATE HOSPITAL.

This hospital already contains more than 800 patients. The buildings now under way will provide properly for 200 more, making 1,000, which are as many as ought to be provided for in this hospital; but with the utmost expedition it is not probable that the fourth hospital can be ready to receive patients before the summer of 1898, by which time the Fergus Falls hospital will contain at least 1,100 patients, and will be as badly overcrowded as the other two hospitals.

While the authorities of the Fergus Falls hospital were among the first to adopt modern hospital methods in caring for their patients, they have continued the use of mechanical restraints to a

considerable extent, using "camisoles," "muffs," "protection sheets," and, also, confining patients in rooms for longer or shorter time. The number of patients thus restrained is limited, not exceeding probably twenty in any one day. The superintendent believes that a moderate use of restraints is more humane than the system of manual restraint by holding which prevails in the other hospitals. We are of the opinion that the use of mechanical restraints, if continued at all, should be reduced to the minimum. We have been unable to discover any serious evils resulting from its discontinuance at the other hospitals; and we find that it is the testimony of both officers and nurses that, on the whole, the non-restraint method is the best.

There is the same lack of winter employment for the patients as at St. Peter and Rochester.

#### THE FOURTH HOSPITAL FOR INSANE.

The legislature of 1895 created a commission to locate the fourth hospital for insane, and appropriated money for the purchase of the necessary land, but made no appropriation for buildings.

We desire to urge upon the legislature the importance of prompt action for the erection of this hospital, in order to relieve the overcrowding which exists in the present hospitals. The insane patients in the hospitals are now increasing at the rate of about 200 per year; therefore, if the new hospital has a capacity of 1,000 patients, which ought to be the limit, it will be filled in the fall of 1901.

The law contemplates the erection of the new hospital on the cottage plan. We are convinced that that plan, possibly in a somewhat modified form, is the proper plan to be adopted. Formerly there was doubt as to the practicability of the cottage plan in this climate, but the experience of the Soldiers' Home, the State Public School and the State Training School have demonstrated its practicability, not only in institutions containing active and robust inmates, but, also, in those whose inmates are feeble and infirm.

Two new hospitals for insane are now being erected in Illinois on a modification of the cottage plan, comprising a central building, with a capacity of perhaps 300 patients, for infirm patients and others requiring close attention, while small buildings, with a capacity of perhaps fifty patients, are provided for those patients who are able to go back and forth to the central dining hall.

The cottage system was advocated formerly on the ground that the patients could be housed in cheaper buildings, but the expe-

rience of the Toledo asylum and other institutions on the cottage plan has proven that cheap buildings soon begin to decay, requiring constant and expensive repairs. With the modern methods of construction it is probably wise to build fire-proof cottages of a substantial and permanent character; but there is a material saving in the reduced strength of walls, foundations, girders, etc., required for buildings of this character.

The state has experienced heavy losses in the past from the unavoidable policy of building institutions piecemeal. The trustees of the hospitals for insane are now asking for \$100,000 for reconstructions and additions at the St. Peter hospital, of which probably one-half might have been saved if the plant could have been erected as a whole. At the School for the Feeble-Minded an entire new heating plant has been necessary on account of the gradual increase of the institution and expensive alterations during almost every biennial period since the institution was established. Similar experiences have occurred at the Rochester hospital, the Fergus Falls hospital, the School for the Deaf and the School for the Blind. We are of the opinion that the state will save money, and at the same time secure a much better plant, if the legislature of 1897 shall make appropriation of the entire sum necessary for the building of the fourth hospital. We believe that an institution for 1,000 patients can be built and equipped at a cost of \$750,000, including buildings for patients, administration building, quarters for officers and employes, dining halls, laundry, bakery, kitchens, boiler-house, chapel, amusement hall, etc. We recommend that the legislature appropriate for this purpose \$150,000 per year for five years, beginning with the year ending July 31, 1897. This will provide for the completion of the institution about July 31, 1901, and will enable the trustees to plan and build the hospital as a complete structure.

We recommend, also, that the appropriations for the fourth hospital be conditioned upon the construction in connection with the hospital of a separate building for the accommodation of insane criminals and dangerous insane persons, in order that the patients of this class may be removed from the other hospitals, as provided in the original law and in accordance with the recommendation of the fourth hospital commission.

#### THE SOLDIERS' HOME.

The hard times have greatly increased the work of the Soldiers' Home. The average population of the home for the years named was as follows: Year ending July 31, 1891, 130; 1892, 141; 1893,



177; 1894, 275; 1895, 325; 1896, 306. The population of the home Nov. 30, 1896, was 367, as against 325 one year ago and 338 two years ago. The present population is the largest ever reported, with one exception (Feb. 28, 1895).

As the average age of the inmates increases there is a corresponding increase in their infirmities, which is shown in the increased proportion of hospital patients and in the increased death rate. The death rate of the home for the year ending July 31, 1896, was 95 in a thousand, as against 58 in a thousand for 1895 and in 62 in a thousand in 1894.

The action of the board of trustees in requiring inmates to surrender their pensions in excess of four dollars per month, unless they have dependent families, has met with considerable criticism, but it has been sustained by the Grand Army of the Republic and is unquestionably right and just.

There is always a certain amount of discontent among the inmates of the home, and this is to be expected. Most of the men are old; some of them are childish, and most of them suffer from wounds or disease. They are without regular employment, and it is only natural that such men under such circumstances should develop some discontent. So far as we have been able to discover, the men are kindly and humanely cared for. The discipline appears to be as mild as is consistent with good order. Some unruly and vicious men have been discharged and debarred the privileges of the home; but this appears to be reasonable and necessary. The board of trustees ask the legislature for no special appropriations except the usual allowance for extraordinary repairs and improvements, and for no current appropriation beyond the standing appropriation of \$20,000 per year. The remainder of the expenses of the home will be met by the grant of \$100 per year for each man from the general government, and, if necessary, by transfers from the "soldiers' relief fund," which are authorized by law.

Those who are most familiar with the subject believe that the number of dependent soldiers will still continue to increase for several years to come, until the advancing death rate overbalances the increasing infirmities of the men. The old soldiers of Minnesota are for the most part a thrifty and independent class of men, and the proportion who become dependent is much less than in the older states from which the more active and thrifty class emigrated to the Western States.

#### THE SCHOOL FOR THE DEAF.

Supt. J. L. Noyes retired from the superintendency of the School for the Deaf in June, 1896, on account of failing health. Super-



intendent Noyes was at the head of the school for thirty years, and under his superintendency it grew from 25 pupils to 236, and attained a position of the first rank among the institutions of the country, and its graduates have taken first rank in the deaf-mute college at Washington. The school owes much to the self-denying labors of Dr. Noyes.

The board of directors endeavored to find the best man in the United States to fill the vacancy, and appointed Supt. E. N. Tate of the Missouri School for the Deaf. Mr. Tate has a high reputation as a wise and successful superintendent.

Like other similar institutions, the School for the Deaf has experienced great difficulty in developing such industries as will enable its graduates to support themselves. The principal industries taught in the school heretofore have been printing, shoemaking, tailoring, cabinetmaking and coopering for the boys, and dress-making and domestic work for the girls. Coopering and tailoring have had to be practically abandoned, and the cabinetmaking and shoemaking are valuable as practical trades for only a small proportion of the pupils.

Superintendent Tate has addressed himself earnestly to the problem. The majority of the pupils are from farms and will return to the farms, and this board has long advocated instruction in this department; but heretofore very little attention has been given to instruction in farming, gardening, etc., for the reason that the school is not in session during the summer. Superintendent Tate has begun work in this department of instruction, and expects to develop it along the lines which have been so successfully followed by the state agricultural school.

It is a matter of vital importance to foster the industries of this school, and we believe that the legislature ought to furnish whatever means are necessary therefor. The deaf citizens of Minnesota are self-supporting almost without exception, and this fact is due largely to the wise and generous provision which the State of Minnesota has made for their education and training.

The attendance at the School for the Deaf has been somewhat diminished during the past year by the opening of a public school for the deaf in the city of Minneapolis. The education of deaf children in the public school, enabling them to reside at home and put in daily practice with their friends what they acquire in the use of language, is a very desirable plan, and should, in our judgment, be encouraged by the state wherever the conditions are such as to admit of the organization of such schools on an efficient

plan. Schools of this class are necessarily expensive, owing to the necessity of employing teachers of special training and the amount of individual attention required.

#### THE SCHOOL FOR THE BLIND.

This school continues to maintain a high standard. The attendance has fallen off during the past year, which is a testimony to the faithfulness of the managers of the school. There is a strong pressure for the admission of adults to the school for asylum care, and many such cases make a strong appeal to the sympathies. It would be easy to increase the numbers and decrease the per capita expense of the school by admitting such persons; but the school is not an asylum, and its use for that purpose would doubtless interfere seriously with its proper work as an educational institution. We believe, therefore, that the action of the directors and superintendent should be sustained.

The accommodations are sufficient for the present number of pupils; but any large increase in the attendance will call for further increase of accommodations. An appropriation is asked for a stable, which ought to be built, as the present stable stands in front of the institution and is little better than a shanty. They ask, also, for an appropriation to connect the superintendent's cottage with the heating plant, which is a desirable change.

#### THE SCHOOL FOR THE FEEBLE-MINDED.

The new custodial building, for which appropriations were made by the last legislature, has been completed and is being rapidly filled up. This building increases the capacity of the institution to about 600 inmates, and a sufficient number of applications is already on file to fill the building. The number of inmates Nov. 30, 1896, was 515.

The wisdom of providing custodial care for the inmates of this school, especially for the young women, is manifest to the most casual observer. Secretary Ernest Bicknell of the Indiana Board of State Charities read a paper at the Minnesota State Conference of Charities and Corrections in November, 1895, which exhibits a startling array of facts. Mr. Bicknell has collected statistics concerning 887 children of feeble-minded parents in Indiana, belonging to 248 families. Of these 887 persons, 562, or 63.2 per cent, were mentally deficient, and in 100 of the 248 families the history of feeble-mindedness has been found extending through more than one generation. A very large portion of the feeble-minded population is, necessarily a charge upon the public, either in almshouses or state

institutions. Those who are a public charge are likely to be such for an average period of at least twenty-five years, at a cost to the public of not less than \$100 per year. Those who are not dependent upon the public are usually dependent on their friends, and the cost of caring for such persons, either in institutions or at home, cannot be less than \$100 per year. The census records in 1890 showed 1,451 feeble-minded persons in the State of Minnesota, whose maintenance must have cost at least \$140,000 per year, the income at five per cent of \$2,800,000. The economy of preventing this kind of dependency is manifest, to say nothing of the misery which may be prevented both to these unfortunate people and to their parents and friends.

The board of directors, several years ago, established a separate ward for epileptic girls, and they have now made arrangements to establish a similar ward for epileptic boys. A considerable number of epileptics drift into the School for the Feeble-Minded, and the establishment of separate wards is a great benefit both to the epileptics and to the feeble-minded. The board of directors now ask the legislature to provide a building for the special care of epileptics, having become satisfied from the experiment thus far made that there is need for such special provision. This request opens up the whole question of provision for epileptics. It is only very recently that institutions for this class have been established. The first one was opened at Gallipolis, Ohio, in November, 1893. It already contains 600 inmates, and there is an increasing pressure for admission. The State of New York opened the "Craig Colony for Epileptics" at Sonyea in 1895, and the institution is having a rapid development. Propositions are on foot for similar institutions in other states. Michigan is now building an institution at Lapeer to be known as the "Home for Feeble-Minded and Epileptics."

There is no doubt that the opening of a special department for children of this class will meet a public want, and it will undoubtedly increase the pressure for admission to the institution. We have probably not less than 1,000 epileptics in the State of Minnesota, of whom many would be glad to avail themselves of such an institution. A large proportion of these epileptics are able to contribute to their own support by labor and are glad to do so. The number of employes in the Ohio institution for epileptics, with 600 children, is reported to be only thirty-five, and one large ward is conducted by the inmates with the supervision of a single man.

We think that the legislature should now consider distinctly whether they are prepared to enter this field, for the reason that



this action will definitely commit the state to a large and important work. If the state is to undertake this great work, we think that it will be the best policy for the state to establish a new and distinct institution.

We recommend that the legislature investigate thoroughly the institutions already established in other states before entering upon so large an undertaking.

#### THE STATE PUBLIC SCHOOL.

The work of the State Public School has been seriously impeded during the past year by the prevalence of an epidemic which prevented both the reception and the placing out of the children. The number of children discharged or temporarily dismissed during the year ending July 31, 1896, was 239, as against 302 for the year ending July 31, 1895; and the number of children admitted during the year was only 130, as against 224 for the preceding year. The school employs two agents, who are constantly employed and are doing good work. Rigid quarantine regulations have been established for all children now received until their health and conditions have been demonstrated. It is believed that this will prevent epidemics hereafter.

The board of control ask for an appropriation for additional buildings. This enlargement this board hesitates to recommend. We are of the opinion that it will be possible to do the work of the school with its present facilities, if it is not interfered with by epidemics. The school is accumulating a considerable number of crippled children who cannot be readily placed in homes. We are inclined to favor the experiment of paying board for such children temporarily in families, as is done in Massachusetts, in the hope that homes can be found for them with those who will keep them.

#### THE STATE TRAINING SCHOOL.

The State Training School continues to increase in population. The number of inmates Nov. 30, 1896, was 376, as against 366 on Nov. 30, 1896; 349 Nov. 30, 1894, and 338 Nov. 30, 1893.

The school is now full, and the board of managers ask an appropriation to construct an additional cottage to accommodate fifty boys.

The establishment of the state agency by the legislature of two years ago has resulted very satisfactorily. The board of managers appointed Miss Grace Johnston as agent, and Miss Johnston has shown extraordinary capability and efficiency. As a result of her work, the board has been able to place discharged children much

more satisfactorily and send out a larger number of children than formerly. The number of children discharged or temporarily dismissed during the year ending July 31, 1896, was 138, as against 88 for the year ending July 31, 1895, an increase of 50. Had these 50 children remained in the school, their maintenance would have cost the state \$7,500. In the State of Massachusetts in 1856, the average number of inmates of the state reform school was 569, or 990 in each million inhabitants; in 1866 the number had increased to 688, which, however, was only 705 in the million. In that year the legislature passed two bills providing for the probation system and the appointment of state agents, and the number of juvenile delinquents supported by the state decreased steadily until in 1886 it had reached the number of 254, or only 136 in the million. Since that time there has been a gradual increase, until in 1895 the state was supporting 375 inmates in two state reform schools and 325 boarded out in families, making a total of 700, a ratio of 283 in the million.

In Minnesota the number of inmates of the State Training School has been as follows: In 1868, 18, or 50 in the million; in 1876, 109, or 180 in the million; in 1886, 173, or 150 in the million; in 1891, 286, or 211 in the million; in 1896, 366, or 225 in the million. Our ratio of delinquent children supported by the state is still less than that of Massachusetts; but at the present rate of increase we shall soon overtake Massachusetts; but we should expect that Minnesota would have a smaller number of juvenile delinquents than Massachusetts. The census of 1890 showed that Minnesota had 1,041 prisoners in the state, a ratio of 800 in the million, while Massachusetts had 5,227, a ratio of 2,325 in the million, so that Massachusetts has three times as large a proportion of adult prisoners as Minnesota. If the relative proportion of juvenile delinquents in Minnesota as compared with Massachusetts corresponded with that of adult prisoners, we should have in the State Training School only 150 children instead of 375.

The reduction of the number of juvenile delinquents in Massachusetts has been accomplished partly by the operation of the state agency system, partly by the operation of the probation law, and partly by the extension of the practice of boarding out children in private families instead of committing them to institutions.

We are convinced that many children are sent to the State Training School who could be reclaimed without institutional treatment if Minnesota had a probation system similar to that of Massachusetts and Michigan. In Massachusetts the system was first

tested in the large cities of the state; and we recommend the enactment of a probation law for juvenile delinquents to apply to cities having more than 50,000. The machinery for the operation of such a law already exists in the cities of St. Paul and Minneapolis, where the principles of a probation law are being partially carried out by the agents of the Minnesota Prison Association with the coöperation and approval of the courts, but without express warrant of law.

An appropriation of \$3,000 a year will be sufficient to try the experiment, and should it result in keeping twenty children out of the State Training School who would otherwise be committed, the state will save much more than this amount. The average stay of children in the State Training School is about eighteen months, and the cost is about \$150 annually per capita, or \$225 per child, which for twenty children would amount to \$4,500.

#### THE STATE REFORMATORY.

The Minnesota State Reformatory has developed slowly, on account of the failure of the criminal class to increase with any such rapidity as has been shown in the increase of the insane, as is indicated by the following statement:

#### *Comparative Increase of State Convicts and State Insane Patients.*

	Population.	Convicts.	Insane Patients.	Convicts to the Million.	Insane to the Million.
1866 .....	300,000	35	30	116	100
1876 .....	640,000	166	530	259	828
1886 .....	1,190,000	387	1,465	326	1,231
1896 .....	1,625,000	576	2,918	355	1,789

It will be observed that in the last thirty years the ratio of the insane has increased eighteen-fold; while the ratio of the convicts has increased less than four-fold.

Owing to the growth of our cities and the development of mining industries in the state, there has been of late a more rapid growth of the convict population. The joint population of the State Prison and State Reformatory at the dates named was as follows: Nov. 30, 1893, 491, or 336 to the million; Nov. 30, 1894, 581, or 383 to the million; Nov. 30, 1895, 558, or 355 to the million; Nov. 30, 1896, 613, or 377 to the million. This is an increase of nearly eight per cent per annum. Should this rate of increase continue, as is probable, our present accommodations will soon be overtaxed.

As a matter of fact, for the past three years many prisoners have been sent to Stillwater who would have been sent to the St. Cloud reformatory except for the lack of adequate accommodations in the latter institution.



This board is strongly in favor of the policy which we have advocated in our previous reports, namely, to make such appropriations for the State Reformatory as will enable the managers to do all of their building with the labor of the prisoners. The legislature of 1895 made an appropriation of \$40,000 towards the erection of a new cell wing, of which the walls are now up. The building is of granite taken from the reformatory quarry and is an excellent piece of work as far as completed.

This plan will solve the labor problem for that institution and will, at the same time, furnish suitable employment for the men.

We recommend further that these appropriations be made in such a way that the institution can receive credit for the actual value of the labor performed on its building on the books of the state auditor, in order that when the institution is completed the books of the state auditor may exhibit its entire cost.

The reformatory farm has been enlarged and the superintendent has worked as many men on the land as practicable. While this increases somewhat the risk of escapes, we believe that it is wise. If these young men are to practice self-control after their release, they must have some opportunity to practice it prior to their release, even though it may be at some increase of the risks of escapes.

After nine years of observation, we are convinced that the efficiency of the work would be increased if the state prison and the state reformatory were placed under one board of managers, with increased facilities for the interchange of prisoners. The present arrangement tends to a certain rivalry which is unfortunate. We believe that the two institutions ought to be operated in perfect harmony.

The workings of the State Reformatory in the matter of paroles have not been entirely satisfactory. During the seven years since the institution was opened 484 inmates have been paroled. Of these, 92, or 19 per cent, violated their first parole. Of these 92, 57 were brought back to the reformatory, of whom 22 were paroled the second time, of whom 9 broke their parole. Of these 9, 6 were brought back to the institution, of whom 2 were paroled the second time, and one of these again violated his parole. There are now at large 38 men who have broken their parole, for whom a reward is offered. There are still on parole 46 men, some of whom will doubtless break their parole, so that it may be assumed that out of the men paroled from the State Reformatory at least 20 per cent violate their parole. A considerable number of men who complied with the conditions of their parole during its continuance are

known to have violated it since that time; but, on the other hand, men may violate the letter of their parole by leaving their place of employment or going beyond the boundaries of the state who afterward lead orderly lives.

The results of the parole system at the State Prison have been more satisfactory. Out of 180 men paroled during the past four years, only 20 have violated the conditions of their parole, or about 11 per cent; and of these 20 men, only 3 are at large, the remainder having been returned to the prison to serve out their sentences.

Three facts should be kept in mind in order not to do injustice to the State Reformatory: First—The fact that all men sentenced to the reformatory are sentenced with the expectation that they will be paroled sooner or later, and in practice nearly all are so paroled; while at the State Prison this privilege is extended only to a selected portion of the men who are deemed especially fit for the privilege. Second—The number of men paroled from the prison has been much less than from the reformatory. The number of men paroled from the reformatory since its foundation has been 484, while the number from the State Prison has only been 180. Third—The fact that the inmates of the State Reformatory are a younger class of men who have less realization of the consequences of violating their parole. At the same time the fact remains that the results of the work of the State Reformatory have not entirely realized the anticipations of the friends of the institution.

The Minnesota prison agent acts for the State Prison and the State Reformatory jointly, but the work has now become too extensive to be carried on successfully by one man. We recommend, therefore, the employment of an additional agent for the State Reformatory. We are convinced that this agency is one of the most economical and useful forms of work which can be carried on by the state.

#### THE STATE PRISON.

The administration of the State Prison continues to be satisfactory. We believe that the discipline of this institution is equal to that of any similar institution in the United States. In 1895 two new prison wardens were appointed in the State of Indiana. The board of prison managers, desiring to send them where they could best inform themselves, after careful inquiry, sent them to Minnesota. As a result the prison system of Indiana has been modified in the direction pursued in Minnesota. Mr. Albert Garvin, late warden of the Minnesota State Prison, was secured as deputy warden for the Indiana Southern Prison. The Minnesota grade and

mark system was adopted, and the governor of Indiana has recently established a conditional pardon system on the same plan which was adopted by Gov. William R. Merriam in Minnesota in 1892. The Minnesota prison has been visited by numerous prison men from other states, all of whom have expressed their approval of the work done.

The parole system at the State Prison has worked satisfactorily, from the fact that the board of managers have exercised a wise discretion in paroling prisoners. They have adhered to the requirements of the law forbidding them to entertain petitions or to hear arguments from attorneys or friends of prisoners. Through the warden, they have made diligent inquiry into the past record of applicants for parole, and have endeavored to restrict this favor to men who give evidence of having developed such a character as would give reasonable assurance of their leading an honorable life. The record made by the paroled men proves that the work has been wisely done, and we believe that it has contributed much to the prevention of crime.

The parole system operates powerfully in two directions. First, the securing of employment in advance and the friendly supervision of the state agent prevents the discouragement to which discharged convicts are ordinarily liable, and, on the other hand, the liability to be returned without trial to serve out the sentence is a powerful incentive to self-restraint and good behavior.

From its inception the grade and mark system has greatly improved the discipline of the prison. Nearly every man who is eligible for parole makes a strenuous effort to maintain such a record as will convince the warden and the managers that he is fit to go at large; but the prison record is only one element in the problem of ascertaining a man's character. The professional criminal, known to be such, may maintain an absolutely clear prison record, while an accidental criminal, not hardened in wrong doing, but foolish and untrained, may be guilty of serious breaches of discipline before he learns to practice self-control.

The prison industries are operating more satisfactorily than formerly. The contract system has been entirely discarded and the piece price system has been substituted in the shoe shop, while the state account system is maintained in the twine shop. Since the substitution of new machinery and the use of cheaper fiber, the twine shop is no longer run at a loss, but produces a revenue to the state.

The agitation in opposition to the employment of convicts on any kind of free productive labor still continues. All of the ob-



jectors concede that convicts should be employed, and nearly all of them concede that they should be employed at productive labor of some sort, but whenever any particular form of productive labor is introduced objection always arises from some quarter. It is urged that convicts must be employed on something which does not compete with free labor; but if they work at all they must compete with free labor. If a convict cooks his own food, sweeps his own cell, makes his own bed, cultivates a garden, or is employed on the erection of prison buildings, he does work for which free laborers might be employed, and to that extent comes into competition with free labor. There appears to be no possible way except for society to shoulder this burden together with the other burdens imposed upon it by crime and dependency, making the effort, however, to distribute this burden as equably as possible among the different industries affected.

Efforts have been made in some states to restrict the sale of prison made goods, but the courts have decided that such laws cannot operate to restrict the introduction and sale of prison made goods manufactured in other states. It becomes a question, therefore, whether we will forbid the sale of goods manufactured in our own state, while at the same time we are compelled to admit prison made goods from other states.

The prison managers ask for no appropriations from the legislature of 1897, except the standing appropriation of \$40,000 annually for the maintenance of the prison and the usual appropriation for extraordinary improvements and repairs.

## FINANCES OF STATE INSTITUTIONS.

The details of the financial operations of the state institutions will be found in the report of the secretary of this board, which follows. For convenience of reference we shall summarize the facts therein contained.

TABLE 1.—STATEMENT OF APPROPRIATIONS  
FOR THE FISCAL YEARS ENDING JULY 31, 1895, AND 1896.

APPROPRIATIONS YEARS ENDING JULY 31, 1895.	Special.	Current.	Totals.
St. Peter Hospital for Insane.....	\$21,000	\$169,400	\$190,400
Rochester Hospital for Insane.....	64,000	169,400	233,400
Fergus Falls Hospital for Insane.....	63,000	138,700	201,700
Total for insane.....	\$148,000	\$477,500	\$625,500
State Soldiers' Home.....	26,500	32,000	58,500
School for the Deaf.....	9,000	48,250	57,250
School for the Blind.....	5,600	16,650	22,250
School for Feeble-minded.....	18,600	75,470	94,070
School for Dependent Children.....	20,830	36,500	57,330
Training School.....	a 61,280	47,000	108 280
State Reformatory.....	34,200	44,760	78,960
State Prison.....	12,500	40,000	52,500
From insurance appropriation.....	6,287	.....	6,287
Totals.....	\$342,797	\$818,130	\$1,160,927

APPROPRIATIONS YEAR ENDING JULY 31, 1896.	Special.	Current.	Totals.
St. Peter Hospital for Insane.....	\$20,700	\$191,211	\$211,911
Rochester Hospital for Insane.....	33,500	190,049	223,549
Fergus Falls Hospital for Insane.....	79,000	142,740	221,740
Total for insane.....	\$133,200	\$524,000	\$657,200
State Soldiers' Home.....	2,000	20,000	22,000
School for the Deaf.....	2,000	51,400	53,400
School for the Blind.....	6,600	19,350	25,950
School for Feeble-minded.....	59,000	85,500	144,500
School for Dependent Children.....	10,900	34,919	45,819
Training School.....	b 37,500	55,000	92,500
State Reformatory.....	21,800	46,900	68,700
State Prison.....	52,500	63,000	115,500
From insurance appropriation.....	5,363	.....	5,363
Totals.....	\$330,863	\$900,069	\$1,230,932
Grand totals for two years.....	\$673,660	\$1,718,199	\$2,391,859

a Includes \$50,000, paid on account of building certificates.

b Includes \$25,000, paid on account of building certificates.

TABLE 1—Continued.

APPROPRIATIONS FOR TWO YEARS ENDING JULY 31, 1896.	Special.	Current.	Totals.
Balance from old appropriations, Aug. 1, 1894	\$198,935	\$110,110	\$309,045
Appropriated for year ending July 31, 1895..	341,879	818,130	1,160,009
Reappropriated from miscellaneous receipts..	140,609	128,271	268,880
Appropriated for year ending July 31, 1896..	330,863	900,069	1,230,932
Reappropriated from miscellaneous receipts..	92,067	103,080	195,147
Totals for the two years.....	\$1,104,353	\$2,059,660	3,164,013
Appropriations canceled.....	6,284	54,885	61,169
Appropriations drawn during two years ending July 31, 1896.....	979,928	1,926,808	2,906,736
Appropriations undrawn July 31, 1896.....	\$118,141	\$77,967	196,108

TABLE 2.

FINANCIAL CONDITION OF THE STATE INSTITUTIONS JULY 31, 1896.

	Special	Current.	Totals.
Appropriations undrawn, as above.....	\$118,141	77,967	\$196,108
Cash in institution treasuries.....	24,960	24,819	49,779
Miscellaneous receipts not yet paid in .....	166,915	18,857	185,772
Total available resources.....	\$310,016	\$121,643	\$431,659
Deduct accounts payable.....	30,723	81,537	112,260
Net available resources.....	\$279,293	\$40,106	\$319,399

TABLE 3.

APPROPRIATIONS FOR THE YEAR ENDING JULY 31, 1897.

INSTITUTIONS.	Special.	Current.	Totals.
St. Peter State Hospital.....	\$5,000	\$176,000	\$181,000
Rochester State Hospital.....	5,000	186,400	191,400
Fergus Falls State Hospital.....	79,000	176,000	255,000
Total for insane.....	\$89,000	\$533,400	\$627,400
Soldiers' Home.....	.....	20,000	20,000
School for the Deaf.....	2,000	52,500	57,500
School for the Blind.....	6,600	21,300	27,900
School for Feeble-minded.....	47,000	105,000	152,000
State Public School.....	10,900	34,000	44,900
State Training School.....	5,500	55,000	60,500
State Reformatory.....	1,800	46,900	48,700
State Prison.....	2,500	68,000	70,500
Totals.....	\$165,300	\$941,100	\$1,109,400



## ESTIMATES OF CURRENT EXPENSES.

The State Board of Corrections and Charities is accustomed to submit estimates of current expenses for the state institutions.

Two elements of uncertainty enter into such estimates: First, the probable number of inmates; second, the probable rate of expense.

In most cases our estimates of the probable number of inmates have proved reasonably correct, as is shown by the following comparison:

TABLE 4.

COMPARISON OF ESTIMATED AND ACTUAL NUMBER OF INMATES OF THE STATE INSTITUTIONS FOR THE YEAR ENDING JULY 31, 1896.

(See Sixth Biennial Report, page 27.)

INSTITUTIONS.	Average Number as Estimated in 1894.	Actual Average Number, 1896.
St. Peter Hospital.....	1,000	968
Rochester Hospital.....	1,100	1,127
Fergus Falls Hospital.....	790	761
Total insane.....	2,890	2,856
State Soldiers' Home.....	300	328
State Public School.....	200	177
State Training School.....	350	366
Total for the two schools.....	550	543
State Reformatory.....	140	130
State Prison.....	480	456
Total state convicts.....	620	586
Total except Institute for Defectives.....	4,360	4,313
School for the Deaf.....	188	148
School for the Blind.....	53	45
School for Feeble-minded.....	475	445
Total for Institute for Defectives.....	716	638
Grand total.....	5,076	4,951

The actual average number of inmates for the twelve months was 2.5 per cent less than the number estimated two years previous; but the falling off was chiefly in the Institute for Defectives, chiefly owing to the opening of a public school for the deaf in Minneapolis. Omitting the Institute for Defectives, the number estimated for in 1894 was 4,360; the actual number for the year ending July 31, 1896, was 4,314, a difference of only 1.1 per cent, which is sufficiently close for practical purposes.

## ESTIMATES FOR 1895 TO 1897.

We present herewith the following estimates of the current expenses of the eleven state institutions subject to our supervision for the two years ending July 31, 1897:

TABLE 5.—ESTIMATE OF CURRENT EXPENSES FOR THE

*Estimated Current Expenses per Inmate, Exclusive*

YEAR ENDING JULY 31, 1898.	HOSPITALS FOR INSANE.				Total Insane.
	Hospital at St. Peter.	Hospital at Rochester.	Hospital at Fergus Falls.	Hospital at Anoka.	
Salaries and wages.....	\$60.00	\$54.00	\$60.00	\$105.00	\$60.00
Food.....	47.00	45.00	46.00	50.00	47.00
Clothing and bedding.....	15.00	15.00	15.00	20.00	15.50
Fuel and lights.....	25.00	24.00	29.00	45.00	27.00
Medical supplies.....	2.00	2.00	2.40	5.00	2.00
Furniture and household supplies.....	6.00	6.00	6.00	10.00	6.00
Repairs (ordinary).....	10.00	10.00	10.00	25.00	10.50
Farm, garden, stock and grounds.....	5.00	5.00	5.00	10.00	5.00
Expenses not classified.....	10.00	10.40	10.00	30.00	10.30
Industrial training and good conduct.....					
Gross current expenses.....	\$180.00	\$171.40	\$183.00	\$300.00	\$181.30
Estimated miscellaneous receipts.....	4.00	5.00	4.00		4.00
Net estimated expenses, per inmate.....	\$176.00	\$166.40	\$179.00	\$300.00	\$179.30
Same, per week.....	3.38	3.20	3.43	5.75	3.40
Estimated average number of inmates.....	1,000	1,120	1,000	150	3,270
Total estimated current expenses.....	\$176,000.00	\$186,400.00	\$179,000.00	\$45,000.00	\$586,400.00
Deduct standing appropriation.....	140,000.00	140,000.00	25,000.00		305,000.00
Deduct U. S. appropriation (estimated).....					
Additional appropriation needed.....	\$36,000.00	\$46,400.00	\$154,000.00	\$45,000.00	\$281,400.00
Estimated school term, per capita.....					
Same, per week.....					
Estimated average number, school term.....					
YEAR ENDING JULY 31, 1899.					
Salaries and wages.....	\$60.00	\$54.00	\$60.00	\$70.00	\$60.00
Food.....	47.00	45.00	46.00	50.00	47.00
Clothing and bedding.....	15.00	15.00	15.00	18.00	16.00
Fuel and lights.....	25.00	24.00	29.00	30.00	26.00
Medical supplies.....	2.00	2.00	2.00	3.00	2.00
Furniture and household supplies.....	6.00	6.00	6.00	9.00	6.00
Repairs (ordinary).....	10.00	10.00	10.00	18.00	10.50
Farm, garden, stock and grounds.....	5.50	5.00	5.00	8.00	5.50
Expenses not classified.....	10.00	10.40	10.00	18.00	10.00
Industrial training and good conduct.....					
Gross current expenses.....	\$180.00	\$171.40	\$183.00	\$224.00	\$183.00
Estimated miscellaneous receipts.....	4.00	5.00	4.00	2.50	4.00
Net estimated expenses, per inmate.....	\$176.00	\$166.40	\$179.00	\$221.50	\$179.00
Same, per week.....	3.38	3.20	3.43	4.25	3.43
Estimated average number of inmates.....	1,000	1,120	1,000	400	3,520
Total estimated current expenses.....	\$176,000.00	\$186,400.00	\$179,000.00	\$88,600.00	\$630,000.00
Deduct standing appropriation.....	140,000.00	140,000.00	25,000.00		305,000.00
Deduct U. S. appropriation (estimated).....					
Additional appropriation needed.....	\$36,000.00	\$46,400.00	\$154,000.00	\$88,600.00	\$325,000.00
Estimated school term, per capita.....					
Same, per week.....					
Estimated average number, school term.....					

## TWO FISCAL YEARS ENDING JULY 31, 1898, AND JULY 31, 1899.

*of Lands, Buildings and Extraordinary Repairs.*

Soldiers' Home at Minneapolis.	INSTITUTE FOR DEFECTIVES AT FARIBAULT.			School for Dependent Children at Owatonna.	CORRECTIONAL INSTITUTIONS.			TOTALS.
	School for the Deaf.	School for the Blind.	School for the Feeble-Minded.		State Training School at Red Wing.	Reformatory at St. Cloud.	Prison at Stillwater.	
\$48.00	\$130.00	\$166.00	\$68.00	\$64.00	\$50.00	\$135.00	\$87.00	\$68.00
55.00	52.00	70.00	45.00	38.00	33.00	45.00	45.00	46.00
22.00	2.00	4.00	5.00	22.00	14.00	25.00	10.00	15.00
25.00	40.00	50.00	26.00	27.00	22.00	30.00	22.00	25.00
5.00	.50	2.00	2.00	2.00	.50	2.00	2.00	2.00
5.00	6.00	12.00	8.00	6.00	5.00	5.00	4.00	5.00
12.00	8.00	20.00	7.00	5.00	5.00	5.00	5.00	8.00
3.00	4.00	10.00	6.00	7.00	6.00	6.00	1.00	5.00
20.00	12.50	27.00	10.00	10.00	8.50	32.00	25.00	11.00
.....	20.00	14.00	2.00	.....	8.00	30.00	29.00	5.00
\$193.00	\$275.00	\$375.00	\$179.00	\$181.00	\$152.00	\$315.00	\$230.00	\$190.00
.....	10.00	10.00	4.00	1.00	4.00	15.00	144.00	12.90
\$193.00	\$265.00	\$365.00	\$175.00	\$180.00	\$148.00	\$300.00	\$86.00	\$177.10
3.70	5.08	7.00	3.35	3.20	2.84	5.75	.....	.....
350	180	55	600	200	385	150	500	5,690
\$67,500.00	\$47,700.00	\$20,000.00	\$105,000.00	\$36,000.00	\$57,000.00	\$45,000.00	\$43,000.00	\$1,007,600.00
32,500.00	35,000.00	12,000.00	45,000.00	15,000.00	35,000.00	15,000.00	40,000.00	534,500.00
35,000.00	.....	.....	.....	.....	.....	.....	3,000.00	38,000.00
.....	\$12,700.00	\$8,000.00	\$60,000.00	\$21,000.00	\$22,000.00	\$30,000.00	.....	\$435,100.00
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	\$205.00	\$274.00	.....	.....	.....	.....	.....	.....
.....	5.25	7.00	.....	.....	.....	.....	.....	.....
.....	213	73	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
\$48.00	\$125.00	\$160.00	\$68.00	\$64.00	\$50.00	\$110.00	\$87.00	\$68.00
55.00	52.00	68.00	45.00	38.00	33.00	45.00	45.00	46.00
22.00	2.00	4.00	5.00	22.00	14.00	22.00	10.00	15.00
25.00	40.00	48.00	26.00	27.00	21.00	24.00	22.00	25.00
3.00	.50	2.00	2.00	2.00	.50	2.00	2.00	2.00
5.00	6.00	12.00	8.00	6.00	5.00	4.00	4.00	5.00
12.00	8.00	20.00	7.00	5.00	5.00	5.00	5.00	8.00
3.00	4.00	10.00	6.00	7.00	6.00	5.00	1.00	5.00
20.00	12.50	27.00	10.00	10.00	8.50	27.00	25.00	10.50
.....	20.00	14.00	2.00	.....	8.00	31.00	29.00	5.00
\$193.00	\$270.00	\$365.00	\$179.00	\$181.00	\$151.00	\$275.00	\$230.00	\$189.50
.....	10.00	10.50	4.00	1.00	4.00	15.00	144.00	12.40
\$193.00	\$260.00	\$354.50	\$175.00	\$180.00	\$147.00	\$260.00	\$86.00	\$177.10
3.70	5.00	6.80	.....	.....	2.82	.....	.....	.....
350	170	60.00	600	200	395	190	500	5,985
\$67,500.00	\$49,400.00	\$21,300.00	\$105,000.00	\$36,000.00	\$58,000.00	\$50,000.00	\$43,000.00	\$1,060,200.00
32,500.00	35,000.00	12,000.00	45,000.00	15,000.00	35,000.00	15,000.00	40,000.00	534,500.00
35,000.00	.....	.....	.....	.....	.....	.....	3,000.00	38,000.00
.....	\$14,400.00	\$9,300.00	\$60,000.00	\$21,000.00	\$23,000.00	\$35,000.00	.....	\$487,700.00
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	\$202.00	\$266.00	.....	.....	.....	.....	.....	.....
.....	5.20	6.80	.....	.....	.....	.....	.....	.....
.....	227	80	.....	.....	.....	.....	.....	.....



TABLE 6.

COMPARISON OF ESTIMATED AND ACTUAL CURRENT EXPENSES 1895-96.

INSTITUTIONS.	As Estimated in 1894.	Actual Expenses in 1896.	Per Cent More or Less Than Estimated.
St. Peter Hospital.....	\$176,000	\$183,954	.....
Rochester Hospital.....	186,400	186,400	.....
Fergus Falls Hospital.....	161,600	162,808	.....
Total for insane.....	\$524,000	\$533,162	1.8 per cent more.
Soldiers' Home.....	60,000	65,345	8.9 per cent more.
School for the Deaf.....	51,400	44,279	14.5 per cent less.
School for the Blind.....	19,350	18,960	2.0 per cent less.
School for Feeble-minded.....	85,500	82,888	3.0 per cent less.
State Public School.....	34,000	36,813	8.4 per cent more.
Reform School.....	52,500	54,084	3.0 per cent more.
State Reformatory.....	46,900	45,082	4.0 per cent less.
State Prison.....	72,000	61,322	19.0 per cent less.
Totals.....	\$945,650	\$941,965	0.4 per cent less.

## COMPARISON WITH PREVIOUS YEARS.

The foregoing estimates are the result of careful study, based on the experience of the past ten years.

The following is a statement of the amount thus estimated compared with the amount appropriated by the legislature of 1893, for the fiscal year ending July 31, 1897:

TABLE 7.

COMPARISON OF CURRENT EXPENSE APPROPRIATIONS FOR 1896-7, WITH  
ESTIMATES FOR 1897-9.

INSTITUTIONS.	Appropriated for 1896-7.	Estimated for	
		1897-8.	1898-9.
St. Peter Hospital.....	\$176,000	\$176,000	\$176,000
Rochester Hospital.....	186,400	186,400	186,400
Fergus Falls Hospital.....	176,000	179,000	179,000
Anoka Hospital.....		45,000	88,600
Total for insane.....	\$538,400	\$586,400	\$630,000
Soldiers' Home.....	20,000	32,500	32,500
School for the Deaf.....	52,500	47,700	49,400
School for the Blind.....	21,300	20,000	21,300
School for Feeble-minded.....	105,000	105,000	105,000
School for Dependent Children.....	34,000	36,000	36,000
Reform School.....	55,000	57,000	58,000
State Reformatory.....	46,900	45,000	50,000
State Prison.....	68,000	40,000	40,000
Totals.....	\$941,100	\$969,600	\$1,022,200

TABLE 8.—PER CAPITA STATEMENT OF CURRENT

(See Sixth Biennial)

	Year Ending July 31.	HOSPITALS FOR INSANE.			Total Insane.	Soldiers' Home at Minne- apolis.
		Hospital at St. Peter.	Hospital at Rochester.	Hospital at Fergus Falls.		
Attendance, salaries and wages..	1893	\$52.20	\$46.30	\$81.10	\$54.70	\$81.90
	1894	62.90	50.10	71.40	58.70	58.30
	1895	66.10	49.50	73.50	60.60	50.30
	1896	67.60	53.50	66.70	61.80	51.80
Food .....	1893	51.60	46.50	51.50	49.10	81.90
	1894	50.00	41.10	56.30	47.20	64.40
	1895	50.50	44.20	50.00	47.80	66.40
	1896	47.10	42.30	45.90	44.90	58.20
Clothing and Bedding .....	1893	15.20	13.70	17.00	14.70	29.40
	1894	17.20	11.90	18.41	15.00	26.10
	1895	18.30	8.20	24.50	15.30	25.80
	1896	17.90	12.80	16.10	15.40	23.60
Fuel and lights.....	1893	28.70	24.20	39.40	27.80	36.40
	1894	27.40	24.10	40.80	28.30	24.20
	1895	25.50	19.50	36.20	25.20	20.40
	1896	23.10	22.80	40.90	27.80	28.40
Medical supplies.....	1893	2.20	1.10	2.30	1.60	5.50
	1894	3.30	1.40	2.10	2.30	3.60
	1895	3.30	1.60	2.70	2.40	3.20
	1896	3.06	1.90	1.70	2.20	3.30
Furniture, etc .....	1893	7.60	5.70	6.10	6.50	4.40
	1894	7.00	5.30	10.90	6.90	8.40
	1895	6.80	5.90	9.40	7.00	4.80
	1896	7.30	8.30	8.50	8.00	4.10
Repairs, ordinary... ..	1893	9.90	12.90	35.30	14.20	3.30
	1894	10.20	14.70	21.60	14.20	18.70
	1895	6.40	13.60	13.50	11.10	5.70
	1896	12.10	16.80	16.00	15.00	21.60
Farm, garden, stock and grounds	1893	3.50	5.10	4.90	4.40	4.30
	1894	5.20	4.40	6.50	5.10	2.80
	1895	5.90	4.80	5.70	5.00	2.90
	1896	6.10	3.30	2.60	4.10	2.50
Industrial expenses and good conduct .....	1893	.....	.....	.....	.....	.....
	1894	.....	.....	.....	.....	.....
	1895	.....	.....	.....	.....	.....
	1896	.....	.....	.....	.....	.....
All other expenses.....	1893	8.90	9.50	24.40	11.00	15.50
	1894	9.50	8.60	18.80	10.80	11.60
	1895	9.20	7.70	18.00	10.40	11.60
	1896	9.93	9.00	15.70	11.10	20.30
Gross current expenses...	1893	\$179.80	\$165.00	\$262.00	\$182.00	\$262.60
	1894	192.70	161.60	246.80	188.50	218.10
	1895	192.00	155.00	233.70	184.80	191.10
	1896	194.30	170.80	214.20	190.30	213.80
Deduct miscellaneous receipts....	1893	4.20	4.40	.....	3.80	.....
	1894	4.30	3.80	.50	3.40	.....
	1895	4.50	4.80	.10	3.50	.....
	1896	4.30	5.30	.30	3.60	.....
Net current expenses....	1893	\$175.60	\$160.60	\$262.00	\$178.20	\$262.60
	1894	188.40	157.80	246.30	185.10	218.10
	1895	187.50	150.70	233.60	181.30	191.10
	1896	190.00	165.50	213.90	186.70	213.80
Average number of inmates.....	1893	962.6	1,106.6	263.4	2,332.7	177.4
	1894	952.0	1,106.3	442.7	2,501.0	275.0
	1895	970.2	1,148.2	558.2	2,676.6	325.0
	1896	968.0	1,126.7	761.1	2,855.8	305.7
Net current expense, based on school term averages.....	1893	.....	.....	.....	.....	.....
	1894	.....	.....	.....	.....	.....
	1895	.....	.....	.....	.....	.....
	1896	.....	.....	.....	.....	.....
Average number of pupils (school term) .....	1893	.....	.....	.....	.....	.....
	1894	.....	.....	.....	.....	.....
	1895	.....	.....	.....	.....	.....
	1896	.....	.....	.....	.....	.....



## EXPENSES FOR FOUR YEARS ENDING JULY 31, 1896.

Report, pp. 32, 33.)

INSTITUTE FOR DEFECTIVES AT FARIBAULT.			School for Dependent Children at Owatonna.	CORRECTIONAL INSTITUTIONS.			Totals.
School for the Deaf.	School for the Blind.	School for the Feeble Minded.		State Training School at Red Wing.	Reformatory at St. Cloud.	Prison at Stillwater.	
\$146.40	\$191.70	\$76.30	\$66.30	\$56.10	\$137.00	\$116.00	\$69.70
137.30	173.80	76.80	61.10	53.30	147.30	88.00	69.70
134.80	179.60	71.70	67.20	48.50	159.60	82.90	68.60
160.20	178.30	75.20	79.00	50.80	144.00	87.70	70.80
53.30	69.80	41.40	39.50	35.30	49.20	53.00	49.30
54.10	76.30	41.30	31.20	33.70	51.60	45.40	46.70
58.70	79.20	45.70	37.00	31.70	60.50	46.60	48.40
51.10	80.00	44.60	39.80	29.60	49.30	42.40	44.80
3.00	.80	6.60	24.70	13.50	36.20	12.70	15.00
2.10	3.70	1.10	21.40	12.50	29.00	13.00	14.40
4.40	2.40	3.80	30.80	11.00	24.90	7.80	14.20
1.80	4.30	8.20	26.20	15.10	33.90	7.60	14.90
58.50	66.40	26.50	33.40	25.50	42.80	34.00	30.60
47.60	52.80	38.10	27.80	23.40	54.20	22.10	29.50
42.50	49.60	26.60	25.40	22.70	33.70	16.40	25.10
47.00	75.00	24.60	31.30	17.80	29.80	21.10	27.40
.30	2.00	1.70	1.40	.40	1.60	2.80	1.80
.40	1.20	1.30	1.40	.60	2.20	2.50	2.00
.70	2.00	1.40	2.60	.50	2.50	3.00	2.20
.30	1.70	1.20	3.60	.40	2.00	1.90	2.00
9.90	17.10	9.20	6.00	3.10	7.50	4.20	6.40
7.80	12.70	9.50	6.10	2.70	6.00		6.50
11.40	17.10	8.20	6.50	4.10	14.10	3.90	6.60
5.00	13.00	7.90	6.80	7.20	7.40	4.10	7.20
45.40	61.20	8.20	4.30	10.40	1.30	4.10	12.80
2.60	13.70	6.70	1.50	6.50	.70	3.90	11.00
2.40	19.30	4.60	3.00	3.90	1.00	6.00	8.20
5.20	20.90	7.20	2.60	9.40	7.00	4.40	12.40
6.60	8.90	5.40	11.50	9.90	2.50	1.10	5.00
3.50	7.00	4.10	10.80	4.80	5.80	.70	4.60
2.60	10.90	7.20	15.20	6.60	5.10	.80	5.50
3.50	12.40	8.10	12.00	9.50	20.90	.80	5.20
30.00	26.70	3.20	.....	3.70	23.60	28.30	5.00
22.10	26.10	1.90	.....	5.20	33.10	27.60	5.50
17.10	14.40	1.00	.....	4.80	31.50	28.70	4.90
21.40	13.00	1.60	.....	4.70	32.10	29.00	4.80
19.40	30.20	9.50	12.20	10.40	37.90	21.00	13.30
13.20	25.70	10.80	10.00	9.90	27.30	21.00	12.50
16.60	28.20	12.00	9.80	9.10	29.90	19.00	12.20
17.30	31.30	11.10	8.70	7.70	33.30	26.40	13.70
\$372.80	\$474.80	\$188.00	\$199.80	\$168.30	\$339.60	\$277.20	\$208.90
290.70	398.00	191.60	174.30	152.60	357.20	227.20	202.40
291.20	402.70	182.20	197.50	142.90	362.80	215.10	195.90
312.80	429.90	189.60	210.00	152.20	359.70	225.40	203.20
19.60	9.60	4.00	2.90	5.50	48.20	108.30	14.70
18.90	26.80	4.70	.90	2.20	43.70	100.10	15.40
11.40	15.10	3.40	2.70	3.30	59.40	72.80	12.30
12.80	10.40	3.60	1.30	4.50	13.70	90.90	12.10
\$353.20	\$465.20	\$184.00	\$196.40	\$162.80	\$321.40	\$168.90	\$194.20
271.80	371.20	187.00	173.40	150.40	313.50	127.00	187.00
279.80	387.60	178.80	194.80	139.60	303.40	142.30	183.60
300.00	419.50	186.00	208.70	147.70	346.00	134.50	191.10
136.0	33.5	319.5	139.0	297.5	133.3	330.5	3,904.4
160.0	41.0	341.6	168.4	319.6	136.7	469.3	4,412.5
169.4	41.9	422.0	189.0	356.5	120.7	506.7	4,807.8
147.6	45.2	445.5	176.5	366.2	130.3	455.9	4,928.7
\$238.0	\$336.0	\$177.0	.....	.....	.....	.....	.....
199.0	278.0	183.0	.....	.....	.....	.....	.....
203.0	282.0	174.0	.....	.....	.....	.....	.....
218.0	288.0	180.0	.....	.....	.....	.....	.....
202.0	53.0	331.0	.....	.....	.....	.....	.....
219.0	55.0	348.0	.....	.....	.....	.....	.....
232.0	58.0	433.0	.....	.....	.....	.....	.....
203.0	66.0	461.0	.....	.....	.....	.....	.....

TABLE 9.

ESTIMATE OF CURRENT EXPENSES FOR THREE YEARS COMPARED WITH EXPERIENCE FOR EIGHTEEN YEARS.

YEARS.	Estimated Population of the State.	Average Number of Inmates of the State Correctional and Charitable Institutions.	Number of Inmates for Each Million Inhabitants.	Total Valuation of Taxable Property in the State.	Amount Expended for Current Expenses of State Corr-ctional and Charitable Institutions.	Rate of these Expenses on All Taxable Property in the State.	Amount Expended for Each Inhabitant of the State.	Amount Expended for Each Inmate Maintained
1878-79.....	735,000	1,133	1,541	\$242,000,000	a \$24,850	1.00 mill	33 cents	a \$214
1879-80.....	780,773	1,206	1,544	250,000,000	243,800	.98 mill	31 cents	302
1880-81.....	880,000	1,183	1,425	258,056,000	241,750	.94 mill	29 cents	305
1881-82.....	900,000	1,295	1,439	271,159,000	274,700	1.01 mills	31 cents	212
1882-83.....	960,000	1,388	1,446	311,192,000	209,150	c 1.01 mills	33 cents	c 226
1883-84.....	1,040,000	1,689	1,624	334,459,000	318,950	.95 mill	31 cents	188
1884-85.....	1,117,798	1,934	1,730	388,259,000	353,900	.91 mill	31 cents	183
1885-86.....	1,155,000	2,182	1,889	399,730,000	363,400	.91 mill	33 cents	167
1886-87.....	1,190,000	2,408	2,024	442,872,000	395,750	.89 mill	33 cents	164
1887-88.....	1,225,000	2,772	2,293	486,670,000	493,900	1.01 mills	40 cents	178
1888-89.....	1,263,000	3,052	2,417	556,196,000	552,600	.99 mill	44 cents	181
1889-90.....	1,301,823	3,275	2,516	559,362,000	656,850	1.17 mills	50 cents	201
1890-91.....	1,355,000	3,486	2,573	583,820,000	701,100	1.19 mills	51 cents	201
1891-92.....	1,409,000	3,699	2,625	595,589,000	697,350	1.17 mills	49.5 cents	189
1892-93.....	1,463,000	3,909	2,672	637,460,000	759,000	1.19 mills	51.9 cents	194
1893-94.....	1,517,000	4,413	2,909	642,904,000	825,202	1.28 mills	54.4 cents	187
1894-95.....	1,572,733	4,808	3,057	688,916,000	882,817	1.38 mills	56.1 cents	184
1895-96.....	1,625,000	4,929	3,032	641,250,000	941,965	1.47 mills	58.0 cents	191
ESTIMATES FOR THREE YEARS, 1897-1899.								
1896-97.....	1,680,000	5,400	3,274	645,000,000	980,100	1.52 mills	58.3 cents	182
1897-98.....	1,735,000	5,680	3,274	680,000,000	1,007,600	1.55 mills	58.1 cents	177
1898-99.....	1,790,000	5,970	3,224	655,000,000	1,090,200	1.62 mills	59.2 cents	178

a In this table, earnings of convicts and miscellaneous receipts are deducted.

b For eight months.

c Adding 50 per cent to the expenses for eight months.

## ESTIMATES FOR BUILDINGS, ETC.

The State Board of Corrections and Charities has not been accustomed to offer estimates of its own for the amount required for buildings, etc., for the several institutions under our supervision; but having furnished the fullest information possible as to the amounts asked by the several boards of trustees, we have left it to the legislature to decide between the claims of the several institutions.

## SPECIAL APPROPRIATIONS ASKED FOR 1898-9.

The special appropriations asked from the legislature of 1897 by the several boards of trustees are as follows:

TABLE 10.

INSTITUTIONS.	Trustees' Estimate for Buildings, Etc.	Our Estimate for Extraordinary Repairs and Improvements.	Total Special Appropriations Asked.
St. Peter Hospital.....	\$103,000	\$10,000	\$113,000
Rochester Hospital.....	58 000	10,000	68,000
Fergus Falls Hospital.....	151,000	10 000	161,000
Anoka Hospital.....	313,000	2 000	315,000
Total for insane.....	\$625,000	\$32,000	\$657,000
Soldiers' Home.....		5,000	5,000
School for the Deaf.....	25,100	4,000	29,100
School for the Blind.....	2,300	1,600	3,900
School for Feeble-minded.....	108,500	5,000	113,500
State Public School.....	40,800	3,600	44,400
State Reform School.....	69,000	5,000	74,000
State Reformatory.....	116,000	3,600	119,600
State Prison.....		3,000	3,000
Totals.....	\$986,700	\$62,800	\$1,049,500

Ordinary repairs are paid from the current expense appropriations.



TABLE 11.

SPECIAL APPROPRIATIONS ASKED AND GRANTED IN 1891, 1893 AND 1895.

INSTITUTIONS.	Asked in 1891.	Granted in 1891.	Asked in 1893.	Granted in 1893.	Asked in 1895.	Granted in 1895.
St. Peter Hospital.....	\$31,000	\$27,300	\$28,100	\$28,100	\$77,600	\$37,700
Rochester Hospital.....	115,000	38,000	161,500	101,500	94,000	117,500
Fergus Falls Hospital.....	316,000	218,000	399,600	216,000	258,500	171,000
Total for insane.....	\$462,000	\$283,300	\$589,200	\$345,600	\$430,100	\$346,200
Soldiers' Home.....	152,000	109,000	3,000	23,000	4,000	53,500
School for the Deaf.....	60,000	60,000	14,000	19,000	10,000	14,000
School for the Blind.....	1,000	1,000	11,200	2,600	16,900	17,200
School for Feeble-minded.....	71,000	3,000	83,200	73,700	111,500	86,100
State Public School.....	31,500	33,500	35,260	39,760	41,250	41,680
State Reform School.....	1,500	a 1,500	10,000	15,000	76,000	b 30,560
State Reformatory.....	310,666	14,200	105,900	36,200	177,600	76,000
State Prison.....	32,500	247,500	10,000	7,000	5,000	74,000
Totals.....	\$1,122,166	a \$753,000	\$861,760	\$561,860	\$872,350	\$739,240

a Not including \$150,000 guaranteed appropriation, to be paid if necessary.

b Not including \$75,000 paid in 1895 and 1896 on the \$150,000 guarantee appropriation of 1891.

On page 41 is a statement of the purposes for which special appropriations are asked.

The following is a comparison of the amount thus requested, with the expenditures of the state for like purposes during the past sixteen years:

TABLE 12.

AMOUNT EXPENDED FOR LANDS, BUILDINGS, ETC., FOR CORRECTIONAL AND CHARITABLE INSTITUTIONS IN EIGHTEEN YEARS.

YEARS.	Amount Expended for Buildings, Etc.	Rate of these Ex- penditures on All Taxable Property in the State.	Amount Expended for Each In- habitant of the State.
1878-79.....	\$87,350	.36 mills	12 cents
1879-80.....	73,050	.29 mills	9 cents
1880-81.....	113,200	.44 mills	14 cents
1881-82.....	170,000	.63 mills	18 cents
1882-83.....	116,650	.37 mills	12 cents
1883-84.....	180,750	.55 mills	17 cents
1884-85.....	144,950	.37 mills	14 cents
1885-86.....	143,650	.36 mills	12.5 cents
1886-87.....	180,850	.41 mills	15.2 cents
1887-88.....	175,200	.36 mills	14.3 cents
1888-89.....	335,673	.60 mills	26.6 cents
1889-90.....	359,855	.65 mills	27.6 cents
1890-91.....	306,065	.52 mills	27.6 cents
1891-92.....	431,420	.72 mills	30.6 cents
1892-93.....	296,920	.47 mills	20.3 cents
1893-94.....	367,000	.57 mills	24.2 cents
1894-95.....	426,980	.67 mills	27.1 cents
1895-96.....	379,383	.59 mills	23.3 cents

TABLE 13.

SUMMARY OF THE TRUSTEES' ESTIMATE OF SPECIAL APPROPRIATIONS, TO BE ASKED FOR THE STATE CORRECTIONAL AND CHARITABLE INSTITUTIONS, FOR 1897-1899.

	HOSPITALS FOR INSANE.				S'ldiers' Home at Minne- apolis.	INSTITUTE FOR DEFECTIVES AT FAIRBAULT.			CORRECTIONAL INSTITU- TIONS.			TOTALS.
	Hospital at St. Peter.	Hospital at Rochester.	Hospital at Fergus Falls.	Hospital at Anoka.		Total Insane.	School for the Deaf.	School for the Blind.	School for Fe'ble- Minded.	State Training School at Red Wing.	Reform- atory at St. Cloud.	
For new buildings .....	\$35,000	\$30,000	\$130,000	\$313,000	\$507,000	\$18,000	\$1,000	\$105,000	\$25,000	\$115,000	.....	\$817,000
For reconstructions and ad- ditions .....	48,000	.....	2,000	.....	50,000	.....	500	.....	1,500	.....	.....	54,500
Totals for buildings.....	\$83,000	\$30,000	\$141,000	\$313,000	\$557,000	\$18,000	\$1,500	\$105,000	\$26,500	\$115,000	.....	\$871,500
For purchasing land.....	.....	4,000	.....	.....	4,000	.....	.....	.....	3,500	.....	.....	7,500
For outside improvements.....	.....	.....	10,000	.....	10,000	.....	.....	\$3,500	.....	.....	.....	23,500
For lighting and heating.....	10,000	17,500	.....	.....	27,500	.....	800	.....	.....	.....	.....	30,300
For equipping shops.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,850
For plumbing.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25,000
For library.....	10,000	15,000	.....	.....	25,000	.....	.....	.....	.....	.....	.....	1,800
For state agency.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,800
For revolving fund.....	.....	.....	.....	.....	.....	.....	.....	.....	10,000	1,000	.....	16,000
For furniture, etc.....	.....	1,500	.....	.....	1,500	.....	.....	.....	.....	.....	.....	1,000
Totals .....	\$108,000	\$58,000	\$151,000	\$313,000	\$625,000	\$25,100	\$2,300	\$108,500	\$40,800	\$116,000	.....	\$986,700
For extraordinary repairs and improvements recom- mended by the State Board of Corrections and Charities for 1897-98.....	5,000	5,000	5,000	.....	15,000	2,000	800	2,500	1,800	1,800	\$1,500	30,400
For extraordinary repairs and improvements recom- mended by the State Board of Corrections and Charities for 1898-99.....	5,000	5,000	5,000	2,000	17,000	2,000	800	2,500	1,800	1,800	1,500	32,400
Grand total.....	\$113,000	\$68,000	\$161,000	\$315,000	\$667,000	\$29,100	\$3,900	\$113,500	\$44,400	\$119,600	\$3,000	\$1,049,500

## DETAILS OF THE TRUSTEES' ESTIMATES FOR SPECIAL APPROPRIATIONS.

### ST. PETER STATE HOSPITAL.

Enlarging and furnishing dining-rooms with provision of freight elevator, etc.....	\$23,000
Changing carpenter shop into laundry and providing washroom....	2,000
Building carpenter and paint shop.....	5,000
Reconstructing present laundry for kitchen and bakery and furnishing same, including new roof.....	15,000
Corridor to connect kitchen with dining-room.....	10,000
Repairs to steam plant.....	10,000
Repairs to plumbing.....	18,000
Repairs, floors, ceilings and outside buildings.....	13,000
New roof, nurses' dormitory and repairs north detached ward.....	5,000
Slaughter house and feed stable.....	
	\$103,000

Hon. T. H. Titus, secretary of the board of trustees, writes: "I have visited St. Peter again, looking quite thoroughly over the needs as to repairs, plumbing, etc. I am more impressed than ever that the present conditions are a constant menace to health. The plaster in many places is working loose and must be replaced, or is liable to hurt some one in falling."

Extract from Supt. H. A. Tomlinson's biennial report:

In beginning a statement of the needs of this hospital, I cannot do better than quote the following paragraph from my report of two years ago:

"An institution for the insane, in the nature of things, is never completed, and aside from the ordinary repairs required, the time comes, especially in buildings as old as those at St. Peter, when more or less radical changes have to be made to meet modern conditions. Since these buildings were put up there has been a revolution in the heating, plumbing, and sanitary arrangements of large buildings."

This work has been begun with the curtailed appropriations made for the purpose two years ago, but the amounts were so small that very little progress has been made.

Since my last biennial report the plaster has been gradually giving away in the center building and south wing, so that it will all have to be removed from the ceilings, as it is a menace to life, and the whole of the chapel ceiling will have to be removed for the same reason. The floors throughout the house are also giving away, and besides being unsightly are a menace to the health and well being of the patients, acting, as they do, as a constant source of supply of infective material which the known habits of consumptive and filthy patients supply, and which has during many years been washed into the constantly widening cracks and apertures in the floors and around the doors of the rooms in the wards.



The walls, roofs and cornices of the main buildings are also in sore need of repairs and paint, and the stone work needs repairing and repainting. When it is taken into consideration that no repairs have been made either in or on these buildings since they were built, it seems to me that we have a right to ask for consideration of our needs, and it is no more than fair that means to meet them should be provided.

Certain changes and improvements are imperatively demanded in the culinary department of this hospital, which are and have been apparent to the board for some time. We are preparing food for 1,200 people, with facilities hardly equal to the proper provision for half that number, and with utensils very old and entirely out of date.

Admitting, as every one must, that the proper provision of food cannot be accomplished with inadequate and imperfect means, it ought not to be necessary to do more than designate the proper means to accomplish this purpose, because the need is apparent to any one who has seen our kitchen and bakery.

Unfortunately, to make the necessary changes other departments must also be remodeled, and we are so situated that unless all of these changes can be made at once, it would be impossible and useless to make any of them. In order to transfer the kitchen and bakery to the ground floor, which is conceded to be the proper place for them, the laundry will have to be transferred to the present carpenter shop, to which building will have to be added a washroom.

A carpenter and paint shop combined will have to be built, and I believe this can be best and most conveniently done by duplicating the present building occupied by the steward's office and storeroom, especially on account of convenience in supplying heat and power and closer proximity to the wards. This change will be especially advantageous because the employment of patients in mending and making furniture, as well as aiding the carpenter in other ways, has during the past two years become so great a factor in the provision of employment for convalescent patients, as well as in conserving the economical care of furniture and buildings. All the room in the present paint shop is needed by the mattress maker and shoemaker, and even then they will be crowded.

It is known to the board that the changes in plumbing and the provision of adequate means for bathing our patients has necessitated such a rearrangement of the room in the wards as to require the provision of a single dining-room on each flat for all the patients on the flat.

This provision, which was made experimentally two years ago for the reception flat on the south side, has been such an unqualified success, both from the standpoint of economy and administration, that we feel confident of the success of the plan for the whole house. We will have all of the advantages with none of the disadvantages of the congregate dining-room; all of the patients, without regard to their condition, will be cared for in one dining-room on each flat, and these dining-rooms will be only about a hundred feet from the kitchen. We have already established this system even with our inadequate facilities, although we cannot care for all the patients in our overcrowded wards.

The addition of sixty feet to the wing at present used for this purpose on each side of the house would give us abundant room, and also a lobby for a freight elevator upon which the food cars can be hoisted to each floor, as well as room for clothes bins, which are sorely needed, to store the clothing before it is taken to the laundry.

With the rearrangement described we could also do away with the kitchens in the detached wards and cook the food for the whole institution in one place. It will be seen from the description given of these changes that each one of them depends on the other, and that not any one of them would be available alone.

The recommendation concerning the north detached ward building is again made, as is also that for an appropriation for a slaughter house and feeding stable. The appropriation for this purpose by the last legislature having been inadequate, has been left untouched.

The amount provided for replumbing the house has not been sufficient, even for the wards, because of the great amount of reconstruction necessary

to put in the new work, so that the center building and detached wards are still unprovided for. To complete this work properly will require almost as much as has been expended, not so much on account of the labor and material for plumbing, but because of the changes in the construction of the buildings required to meet the needs of modern sanitation. The appropriation for the heating plant having been curtailed, the remodeling of the north wing and center building and north detached ward, according to the plans adopted, remains undone and will require a new appropriation for the purpose.

#### ROCHESTER STATE HOSPITAL.

Electric plant and buildings.....	\$30,000
New boilers.....	7,500
Plumbing .....	15,000
Seating and furnishing chapel.....	1,500
Purchase of 160 acres of land.....	4,000
	<hr/>
	\$58,000

#### FERGUS FALLS STATE HOSPITAL.

East detached ward, with corridors.....	\$120,000
Carpenter shop.....	10,000
Cold storage.....	8,000
Piggery .....	1,000
Laundry enlargement.....	2,000
Stand pipe for water works.....	10,000
	<hr/>
	\$151,000

Supt. Geo. O. Welch, M. D., writes: "We shall certainly be obliged to relieve the overcrowded condition of the other hospitals as fast as our buildings are completed, so that if the legislature grants us an appropriation for the east detached wing, our total population at the time it is occupied cannot be very much under 1,200 patients."

#### FOURTH STATE HOSPITAL.

The commission appointed to locate the fourth state hospital and to make estimates for its cost submits the following estimates:

Hospital group, including corridors and administration building.....	\$243,650
Kitchen, bakery, etc.....	21,809
Steward's office and storage building.....	12,800
Laundry .....	13,355
Engine and boiler room building.....	16,400
Cold storage building.....	7,640
Two groups of buildings for chronic insane.....	270,500
Two buildings for convalescents.....	85,000
Two buildings for infirmary wards.....	62,000
One building for criminals.....	74,000
One building for contagious diseases.....	6,500
Two buildings for employees.....	38,000
Two farm cottages.....	30,000
One barn.....	5,000
One cottage for superintendent.....	5,000
One water tower.....	6,000
One amusement hall and gymnasium.....	47,000
One chapel.....	18,000
Sewerage .....	6,000
Tunnel .....	5,500
Boilers and machinery for engine room.....	14,000
	<hr/>
	\$988,184

The commission recommends that the legislature make a sufficient appropriation to build the administration building and the four hospital wards, steward's office, store building, boiler and engine room, kitchen, bakery, laundry and barn. These should be entirely completed before a patient is admitted into the institution.

The cost of these buildings will be \$313,044.

#### THE STATE SOLDIERS' HOME.

The trustees of the State Soldiers' Home ask for no special appropriations aside from the usual appropriation for extraordinary improvements and repairs.

#### THE MINNESOTA INSTITUTE FOR DEFECTIVES.

##### *School for the Deaf.*

For new smokestack.....	\$2,000
For deep well, pump, tank, pipe and connection.....	4,250
For engine for machinery.....	600
For shop machinery.....	250
For trades building and gymnasium for girls.....	18,000
Total .....	\$25,100

##### *School for the Blind.*

For barn for stock, wagons and hay.....	"es." \$1,000
For extending steam heat to cottage.....	"es." 800
For finishing hospital.....	"es." 500
Total .....	\$2,300

##### *School for the Feeble-Minded.*

For epileptic custodial building—furnishing, lighting, heating and water complete.....	"es." \$80,000
For stock and storage barn, for sixty cows, horses, hogs, storage for hay, grain and farm machinery.....	"es." 5,000
For shop and training rooms.....	20,000
For dynamo and power.....	"es." 3,500
Total .....	\$108,500

The board of directors say, in their biennial report:

Two years ago we presented the necessity of additional room for this department, urging the building and equipment of an additional custodial building, a central heating and lighting plant, and the completion of an unfinished wing of the girls' custodial.

The legislature responded in full to our estimate, which, with the strictest economy, proved sufficient for the work.

The most urgent applications for admission to this department still continue to be made, many of which are most pathetic and distressing in their nature.

It is impossible for us to receive them without further room. We have now present 514 inmates and on file 185 applications, some of which will be admitted in a few days.



In providing additional room it is planned to make another important classification, and provide for the epileptics in separate quarters. We have now the school and administration building where the educable children live and are taught and trained; the two custodials, one for the boys and one for the girls, where the low grade imbeciles are cared for. With these latter are now mingled epileptics of the milder type; and in the south wing of the school building is kept a colony of our worst cases of epilepsy, numbering about forty. In providing additional quarters we propose a building similar in size and equipment to the custodials now occupied, for a colony of epileptics, which might properly be called the hospital department. The difference in the necessary treatment of these classes would thus become easier, more systematic and less expensive per capita, and relieve many of our simple-minded children from the fright incident to witnessing painful convulsions.

The financial stringency now prevailing makes us timid in asking the funds which we need to meet the special wants of the several schools under our charge, but the law requires us to report our limitations, and the legislature must assume the responsibility of giving or withholding the means for the enlargement of the work.

We insist that none of these items have been padded. We cannot agree to provide any one of them for less than our estimate. Second, that those marked "es." we deem essential—the rest important.

#### THE STATE PUBLIC SCHOOL.

##### *State Agency.*

For the year ending July 31, 1898, including the continuous annual appropriation of \$1,500.....	\$5,000.00
For the year ending July 31, 1899, including the continuous annual appropriation of \$1,500.....	5,000.00

##### *Extraordinary Repairs and Improvements.*

For the year ending July 31, 1898.....	1,800.00
For the year ending July 31, 1899.....	1,800.00

##### *Equipments and Buildings.*

For a schoolhouse and cottage residence, including heating (which will require one new boiler), lighting, sewer, plumbing and furniture .....	25,000.00
For changing the present schoolhouse into a cottage.....	1,500.00
For library.....	800.00
For additional land (eighty acres).....	3,500.00

Totals .....	\$44,400.00
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Supt. G. A. Merrill writes as follows:

The following supplementary statement concerning the special appropriations recommended by the board of control for the State Public School is offered:

*State Agency.*—The sum of \$500 per year has been added to the amounts heretofore appropriated for the state agency, for the reason that the board desires to have more personal work done in investigating the homes of applicants for children. The sure way of doing the best work in placing children in homes is to personally visit and investigate the home of every applicant before allowing him to take a child.

*Equipments and Buildings.*—The board recommends the erection of a new schoolhouse and the conversion of the present schoolhouse into a cottage for boys. The present school building contains four rooms and has seating capacity for 140 pupils. The average daily attendance of children of school age during the past two years was 176. The need of this building was felt two

years ago and the need has not been lessened. If the money with which to build the schoolhouse and to transform the present schoolhouse into a cottage is appropriated, the double purpose of securing needed school facilities and another cottage would be served.

A house for the accommodation of the superintendent's family apart from the buildings occupied by the inmates should be erected on the premises. The superintendent has personal charge of the institution, is held responsible for its condition at all times, the care of the children and the property, and is required to reside with his family on the premises.

It is expected that the sum recommended for these buildings will cover the necessary furnishing, lighting, heating (including a new boiler) and plumbing.

*Additional Land.*—Since my former report to you of the amounts that would be recommended for this institution, the board has decided to ask for the additional sum of \$3,500 for the purchase of eighty acres of adjoining land. This land is urgently needed to furnish pasture and support for the increasing herd of cows. Heretofore it has not been available, but is soon to be sold by the heirs, and will not be available for the state unless purchased soon.

*The Library.*—No more valuable aid to the work of our matrons and teachers in educating the children could be provided than an ample supply of good books. It is important that the children committed to our care should acquire a taste for the best literature before they leave this school. That the books are appreciated by the pupils is evidenced by the constant patronage the library receives.

#### THE STATE TRAINING SCHOOL.

*For the Year Ending July 31, 1898.*

For extraordinary repairs and improvements.....	\$2,500	
For supplementary water supply.....	7,500	
For increasing library.....	500	
For school building, to accommodate 300 pupils.....	25,000	
For finishing machine shops.....	2,000	
For machinery.....	1,000	
For teachers and equipment for manual training school....	2,500	
For finishing girls' school building.....	2,500	
For state agent.....	3,000	
		<hr/> \$46,500

*For the Year Ending July 31, 1899.*

For extraordinary repairs and improvements.....	\$2,500	
For cottage No. 4.....	16,000	
For hospital.....	3,000	
For teachers and equipment for manual training school....	2,500	
For library.....	500	
For state agent.....	3,000	
		<hr/> 27,500
Total appropriations asked.....		<hr/> \$74,000

The superintendent writes as follows:

In addition to the appropriation for current expenses, repairs and improvements and the appropriation for state agency, we have in our report asked for the year 1898:

\$25,000 for the erection of a school building. This is in order to give the boys the benefit of a graded school; whereas now our schools occupy the family school rooms with as many ungraded schools as there are families.

\$7,500 for additional water supply. Our artesian wells furnish a limited supply and this is inadequate for irrigation, watering lawns, etc. We are obliged also to provide a different kind of water for our boilers, as the water now in use for our boilers is ruining them, and we have been advised by the

Hartford Insurance Company that we must furnish different water from that we now have. At the closest estimate this cannot be provided for less than the amount asked.

\$500 for addition to library.

\$2,000 to complete manual training building.

\$3,500 for extra machinery for laundry, machinery for blacksmith and machine shops and moulding room.

\$2,500 for finishing third story of the girls' department. The number of girls in our school has so increased that it will be necessary during the next two years to have more room. The third story has never been finished.

For the year 1899 we have asked, in the way of special appropriations:

\$16,000 to build and equip a cottage for the boys. Our school has continued to increase, notwithstanding all our efforts to place out the boys in homes wherever suitable homes could be procured. Our families are all too large to do effective work, and we therefore renew our request for an appropriation for an extra cottage for the boys.

\$3,000 for a hospital. This is a necessity that is apparent to all who are acquainted with the needs of the school.

\$2,500 for manual training.

\$500 for library purposes.

We trust that your board will give us, in this matter, all the assistance you consistently can, for we feel that these children, while in our school, should be given instruction in all the branches that will fit them, when they leave us, to go out into the world to earn an honest living.

J. W. BROWN, Superintendent.

#### THE STATE REFORMATORY.

The board of this institution ask:

First—For \$50,000 to complete new cell wing. About eighty more prisoners will fill every cell at Stillwater, and ours being already full, additional room will be required before it can be supplied.

Second—For \$40,000 to make dining and school rooms, neither of which we have and both of which will soon be imperatively required.

Third—For \$25,000 to build a woman's building. The law requires us to receive women, and at present there is no place for them. The reason for making it here is that it can be built and maintained much cheaper here than elsewhere by utilizing our inmates in building, in raising a large part of the necessary food and in labor which would have to be otherwise hired.

Fourth—It is recommended that an annual appropriation of \$30,000 be made, as was done at Stillwater until that prison was completed, so as to keep our surplus labor employed in making material and economically building room as fast as the growing needs of the state require.

Respectfully yours,

W. H. HOULTON, Superintendent.

#### THE STATE PRISON.

The board of managers ask for no special appropriations, except the customary appropriation for extraordinary repairs and improvements.



## STATISTICS OF CRIME.

A semi-annual census of all the prisoners in the State of Minnesota is taken by this office, and this census reveals the gratifying fact that the proportion of prisoners in the community has been decreasing for the past ten years. There were in the state Dec. 31, 1885, 836 prisoners; Dec. 31, 1890, 931 prisoners, and Dec. 31, 1895, 1,080 prisoners. The increase was considerably less in proportion than the increase in the population of the state. The ratio of prisoners to the general population was as follows: Dec. 31, 1885, 748; Dec. 31, 1890, 716; Dec. 31, 1895, 687. The mid-summer census taken June 30th of each year shows a corresponding decrease in the ratio of prisoners to the general population. This decrease may be due in part to the operation of the parole system, but the returns show an actual decrease of the number of prisoners in the county jails and workhouses which are not affected by the parole system.

The effect of the hard times upon the number of prisoners serving sentences in jails and workhouses has been exactly contrary to what might have been expected. The number of prisoners of this class in the state Dec. 31, 1892, was 383. June 30, 1893, the number had increased to 508. Dec. 31, 1893, it had been reduced to 388, almost the same number as at the same date of the previous year. June 30, 1894, the number had decreased to 244, since which time there has been a gradual increase, as follows: Dec. 31, 1894, 269; June 30, 1895, 329; Dec. 31, 1895, 346; June 30, 1896, 361. If we take the two cities of St. Paul and Minneapolis this curious trend is still more marked. The number of prisoners serving sentence for misdemeanors in the cities of St. Paul and Minneapolis, Dec. 31, 1892, was 289; June 30, 1893, it had increased to 336; Dec. 31, 1893, it had decreased to 267; June 30, 1894, it had dropped to 150; since which time there has been a gradual increase as follows: Dec. 31, 1894, 172; June 30, 1895, 187; Dec. 31, 1895, 194; June 30, 1896, 202. It appears, therefore, that both in the cities and in the country the hard times did not operate to increase the number of misdemeanant prisoners, and that notwithstanding what appeared to be a normal increase since 1893 we have not yet gotten back to the number of prisoners that were found in the state in the prosperous times of 1892. Several reasons have been given by municipal judges, superintendents of workhouses, sheriffs, and other practical observers. Some think that it is because the judges have been more lenient in sentencing vagrants and other misdemeanants in consideration of the hard times; others think that the decrease is due to the fact that people had less money to spend for intoxicat-

ing drinks, and consequently did not commit misdemeanors. There was a large exodus of the floating population to the Pacific coast and other prosperous points previous to 1893, which is thought to account for this fact in part. One officer said: "Hundreds of people of the vagrant class left Minnesota with Coxey's army and never came back."

Whatever may be the causes, the facts bear testimony to the courage and steadfastness with which the people of Minnesota have met the stress of the past three years.

It is too much to hope that Minnesota can escape altogether the operation of those causes which have uniformly produced an increase of the criminal classes as communities have grown older and civilization grows more complex, but we may at least hope that the character of our people and our institutions may continue such as to enable Minnesota to maintain the place which she has hitherto occupied in the very lowest ranks of the states of the Union as regards the proportion of criminals. The census of 1890 showed that Minnesota had 800 criminals out of each million of her population, as against an average of 1,315 in each million for the United States. California had 2,813 in a million; Kansas, 1,351; Massachusetts, 2,335; New York, 1,912; Pennsylvania, 1,234; Michigan, 1,029; Illinois, 1,029; while Wisconsin had only 663; Iowa, 531; and the Dakotas, 538.

Minnesota's immunity from crime is largely due to the admirable character of her immigration, both native and foreign. The secretary of this board has made careful study of this subject, from which it appears that out of each million foreign born males of voting age in the United States there were in 1890 3,285 prisoners, but in Minnesota and Wisconsin there were only 1,735 prisoners out of each million foreign born males, while in Kansas the ratio was 4,255, in Montana 4,300, in California 5,295, and in Massachusetts 5,865.

It is a significant fact, and one for careful consideration, that while the foreign born males of voting age have only 3,285 prisoners in a million, the children of foreign born parents of the first generation have 5,475 prisoners in a million. In Minnesota the children of foreign born parents have nearly twice as many prisoners proportionately as their fathers. This fact illustrates on the one hand the difficulty which our foreign born residents have in training their children for the new environment, and on the other hand the importance of those preventive measures which are calculated to preserve the youth from falling.

## STATISTICS OF PAUPERISM.

The semi-annual pauper census taken by this office reveals some interesting facts with reference to the effects of the hard times in the increase of pauperism.

This enumeration shows that the number of paupers relieved during the month of December, 1892, was 6,421, which was about the same number as for the corresponding month of the two preceding years. In December, 1893, the number relieved was 12,000, nearly double that of 1892, and the number relieved in December, 1894 and 1895, was nearly the same.

The number of paupers relieved in the month of June, 1893, was 5,444, as compared with 469 in June, 1892. In June, 1894, the number relieved was 7,551, an increase of fifty per cent; and in June, 1895, the number relieved was 8,565, a further increase of 1,000.

A comparison of the cities with the rural districts indicates a marked difference in the effects. In the three counties of Hennepin, Ramsey and St. Louis, including the cities of Minneapolis, St. Paul and Duluth, the number of persons relieved in December, 1892, was 3,838, and the number relieved in December, 1893, was 7,094, an increase of nearly 100 per cent. The number in December, 1894, was 6,256; December, 1895, 6,345, indicating a permanent increment to the pauper population. The number relieved in these three counties in June, 1894, was 814, an increase of 300 over the preceding year. The number relieved in June, 1894, was 3,113, an increase of 100 per cent in two years. The number relieved in June, 1895, was 3,633.

In the rural districts, comprising the entire state, except the three counties named, the number of paupers relieved in December, 1892, was 3,655; in December, 1893, 4,905, an increase of only one-third. The number relieved in 1894 and 1895 was about the same as in 1893. The number relieved in June, 1892, was 3,336; June, 1893, 3,640; June, 1894, 4,438; and in June, 1895, 4,932. There was an increase of one-third from June, 1892, to June, 1894. While the number relieved in June, 1895, was 4,952, the number relieved in December, 1895, was only 5,207.

A further examination of these statistics indicates a marked difference in the methods of dealing with paupers in the cities and in the country. For example: In June, 1894, the number relieved in the cities was 3,113, and in December, 1894, 6,256, exactly twice as many; while in the country districts the number relieved in June, 1894, was 4,438, and in December, 1895, 5,098, an increase of only twelve per cent. In other words, the county commissioners



throughout the state gave nearly as much relief in summer as in winter, while the authorities in the cities cut off relief in the summer and increase it in the winter.

We have had occasion in the past to call attention to the pauperizing effect of the system of pensioning paupers the year round. The most practicable remedy for this evil is the education of the officers who dispense the relief, by investigating the systems employed in the best managed counties and by attendance upon such gatherings as the State Conference of Charities. We are convinced that fully one-third of the amount dispensed for outdoor relief can be abated without hardship to the poor; and that, on the contrary, it will tend to the improvement of their condition by cultivating habits of independence and thrift.

In this connection we wish to recommend that the poor laws of the state be recodified. These laws have been amended from time to time until they are inconsistent in some particulars and inadequate in others. Some fifteen counties are operating under special laws which vary in their provisions and create confusion in their administration.

### THE IMMIGRATION OF DEPENDENTS.

The attention of this board has been called to the fact that Minnesota suffers materially from the importation into the state of paupers, insane persons, and other dependents, who, although they have not a legal residence in the state, become a charge upon our people and help to overcrowd our institutions.

In one of the hospitals for insane seven cases were reported at one time of persons who had been committed to the hospital, although they had no legal residence in the state. The case of Mrs. Marie Ricks will illustrate pointedly the imposition to which the state is subject under our present law. This woman is a resident of Wisconsin who spends most of her time in insane hospitals and prisons. Although she is not a resident of Minnesota, and it is doubtful whether she is insane, she has been committed to each of the Minnesota hospitals for insane at least twice, and at present is an inmate of the Rochester Hospital for Insane, where she was committed as an inebriate. The law requires the county authorities in such cases to send the persons to the state in which they have a legal residence, but the law is totally inoperative. A blind pupil was recently found in the Minnesota School for the Blind who had been sent into Minnesota by the authorities of a county in North Dakota. Cases have been reported of people who have moved into

Minnesota from other states in order to place members of their family in the public institutions of this state; and cases are constantly occurring where the public authorities are compelled as a matter of humanity to provide for paupers who have not a legal residence.

The secretary of this board has made a careful investigation of the subject of the interstate migration of paupers, insane persons, and other dependents, and has prepared a bill entitled "An act to define the residence of insane persons, paupers and other dependents, and to provide for the return of non-residents to their places of residence."

The principal features of the proposed law are as follows:

1. That continuous residence for one year in any community shall establish a legal residence, and that time spent in a public institution and time during which the pauper has received public aid shall not be counted towards establishing a residence.
2. That non-residents shall not be admitted to state institutions except by special act of the state board of corrections and charities.
3. That alleged non-residents shall be investigated by the state board of corrections and charities, and if found to be residents of another state or country may be removed thereto at state expense; and if found to be residents within the state, they shall be sent to their proper residence at the expense of the community to which they belong.
4. Disputes of towns or cities in the same county with reference to the residence of paupers to be settled by the board of county commissioners; the decision of said board, or the decision of the state board in state cases, to be subject to appeal in district courts.
5. Agents of railroad companies or other common carriers are forbidden, under penalty, to bring paupers into the state or to transfer paupers from place to place within the state, either at reduced rates of fare or by free transportation, unless the ticket is accompanied by a certificate signed by some public officer or responsible agent of some charitable organization, saying that the person is going to his legal residence, or to friends or to other responsible parties, or that he is able to earn a living and is being sent to some place where he has a definite prospect of employment.
6. The law empowers the state board of charities to enter into an agreement with the authorities of other states which shall adopt concurrent legislation, for the arbitration of disputed questions between such states respecting the residence of insane persons, paupers and other dependents, and for the return of such persons to their proper residence.

We recommend the enactment of an act containing the essential features herein embodied. We are convinced that it is important to check the influx of non-resident dependents by means of county action and that the only practicable method is by a special state agency.

#### STATE CONFERENCE OF CHARITIES AND CORRECTION.

The State Conference of Charities and Correction has become a valuable agency for the improvement of methods of charity and reformation. The legislature of 1895 made an appropriation of \$300 per year to defray the expenses of the conference. This appropriation has furnished the means to secure the attendance of experts from other states, who have contributed materially to the success and interest of the conference.

The conference of 1895 was held at Faribault, and was attended by about 125 delegates from outside points. The president of the conference was Hon. J. B. Wakefield of Blue Earth City. The executive committee secured the assistance of Hon. A. C. Wright of Wisconsin, president of the National Conference of Charities and Correction for 1896; Dr. Fred H. Wines of Illinois, special agent of the United States census in the department of crime, pauperism, etc.; and Secretary Ernest Bicknell of the Indiana Board of State Charities.

The conference of 1896 was held at Red Wing, and was attended by over 100 delegates from outside points. The president of the conference was Hon. Wm. E. Lee of Long Prairie. The executive committee secured the assistance of Hon. Alexander Johnson of Indiana, president of the National Conference of Charities and Correction for 1897; Supt. L. D. Drake of the Missouri Reform School for Boys, and Hon. Joseph P. Byers of the Ohio Board of State Charities. These gentlemen not only contributed important papers and addresses, but assisted greatly by shedding the light of the experience of other states upon the questions discussed by the conference.

In addition to these gentlemen the following named persons came from other states at their own expense for the purpose of attending the conference: Hon. A. O. Wright of Wisconsin; Hon. Clarence Snyder, member of the Wisconsin State Board of Control; Capt. C. S. McKowan, superintendent of the La Crosse County Insane Asylum, at Salem, Wis.; Mrs. E. W. White of Chicago; Miss Charlotta Goff, secretary of the Associated Charities of Des Moines, Iowa; Mrs. Abbey Speaker of Rockford, Ill.; and Capt. S. Alberti of Chicago.



The next meeting of the conference will be held at St. Cloud, in November, 1897. The president of the conference of 1897 is Dr. T. C. Clark of Stillwater.

The principal lack of the State Conference of Charities and Correction is the small attendance of county commissioners, superintendents of poorhouses, and other public officers who have the care of the public relief of the poor. In the states of Pennsylvania, New York, Ohio, and Indiana the state conference is largely attended by these officers, to the great benefit of the public service. The work of caring for the poor is an expert work, and the county commissioners who have charge of this work in Minnesota have little opportunity to qualify themselves for it. The principal reason for the meager attendance by these officers is that the county commissioners lack authority to pay the expenses of delegates. We recommend that county commissioners be authorized to pay the actual traveling expenses of delegates to the state conference of charities, provided such delegates shall not receive per diem allowance for time expended in attending the conference.

#### THE MINNESOTA PRISON ASSOCIATION.

There has been organized during the past year a voluntary association known as the Minnesota Prison Association, of which ex-Gov. L. F. Hubbard is president. This association is organized for the purpose of coöperating with the authorities of the State Prison, the State Reformatory, city workhouses, county jails, etc., in giving suitable assistance to discharged prisoners who are disposed to lead an honorable life; also, for the purpose of carrying on preventive work for children and others who are in danger of being led into a criminal life.

Branches of the state association have been established in St. Paul and Minneapolis, and competent agents have been employed to carry on the work. These agents attend the police courts daily and render valuable assistance to the judges of the municipal courts. Successful prison associations are maintained in Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania and Maryland; and such associations have been organized in Ohio and Iowa, but heretofore have not been successfully maintained in the interior states. We believe that this association fills an important field, and we bespeak for it the hearty coöperation of the people of the state.

## COUNTY BOARDS OF VISITORS.

The State Board of Corrections and Charities has come to recognize the desirability of some local agency to coöperate with the state board in the counties of the state. The visits of inspection made by our secretary are necessarily infrequent, and observation proves that there is often a lack of local familiarity with the needs and conditions of the county jails, the county poorhouses, the village lockups, and other local institutions.

The State of Massachusetts employs local agents of the state board of charities in different parts of the state, who are paid an annual salary; the State of Michigan has a county agent of the state board of charities in each county, who receives a per diem allowance of three dollars and expenses. The States of Ohio and Illinois have boards of county visitors, who serve without compensation and without allowance for expenses. These boards are appointed by the judges of courts and have done valuable work.

The Michigan state agency system has some decided advantages, for the reason that the agents feel a greater sense of responsibility, and the compensation, which is limited to \$100 per year for each agent, is sufficient to justify them in putting in the necessary time. The system costs the State of Michigan probably about \$10,000 per year. The county agents coöperate with the agent of the state public school in caring for dependent children, and they attend trials of juveniles brought into the courts of the state on any criminal charge.

We are of the opinion that for the present a system of unpaid visiting boards, similar to that of Ohio and Illinois, will meet the need of our state, and we recommend that the judges of the district court be empowered to appoint in each county of the state a board of four visitors, consisting of two men and two women, who shall receive no compensation for their services or expenses.

## MEETINGS OF THE BOARD.

Meetings of the board were held during the biennial period as follows: Aug. 6, Nov. 8, Nov. 15, and Dec. 26, 1894; April 9, July 2, and Oct. 8, 1895; Jan. 30, April 7, and July 15, 1896. The most important business transacted by the board at their meetings was as follows:

Aug. 6, 1896 (special meeting).—Plans for county jails in Carver, Itasca and Redwood counties were approved, with certain modifications; plans for a jail in Big Stone county were disapproved. Plans

for lockups in Owatonna and Stewartville were approved, with minor modifications. The Wabasha city council were advised to locate their lockup at the rear of the proposed city building. The village councils of Grand Rapids and Barnum were advised to place their lockups in detached buildings. The commissioners of Pipestone county requested advice with reference to building a county jail and were advised to build a jail at an estimated cost of \$10,000. The commissioners of Wadena county were advised against adopting the town system of caring for the poor.

Nov. 8, 1894.—The board met at Red Wing. It was voted to renew the recommendation of the board to the legislature for a fourth hospital for insane on the cottage plan. It was voted to advise the county commissioners of Grant and Stevens counties against the adoption of the town pauper system. Rev. S. G. Smith and the secretary were authorized to confer with the trustees of the state hospitals for the insane with reference to future provisions for caring for the insane. The secretary made a report on the work of the state fire relief commission. A conference was held with the managers of the state training school with reference to the transfer of certain classes of boys to the St. Cloud reformatory. It was voted to join with the board of managers of the state training school in recommending a special appropriation for the establishment of a state agency for the placing and supervision of inmates released from that institution; also, to join them in recommending that the law be so amended as to allow the board of managers to apprentice children with or without their consent. The board inspected the state training school. The board adjourned to meet at St. Cloud, Nov. 15, 1894.

Nov. 15, 1894 (special meeting).—The board met at the state reformatory, as per adjournment. The institution was thoroughly inspected, and Superintendent Lee made a statement, setting forth the needs of the institution for the coming two years and the appropriations which would be asked from the legislature of 1895.

Dec. 26, 1894 (special meeting).—The board met for special consideration of its recommendations to the legislature. The recommendations of the board as published in its biennial report to the legislature of 1895 were agreed upon.

April 9, 1895.—Hon. Edmund S. Durment of St. Paul took his seat as a member of the board in place of Rev. S. G. Smith, D. D., resigned. Hon. C. Amundson was elected as vice president in place of Dr. Smith. The commissioners of Pope and Marshall counties requested preliminary advice with reference to the building of county jails. They were advised against building. A request was



received for advice with reference to building a county jail in the attic of the new court house in Hennepin county. A communication was sent to the Hennepin county court house commission, and, also, to the commissioners of Hennepin county, favoring the general plan, but advising that a committee, with a competent architect, be sent to examine the county jails in Madison and Milwaukee, Wis., and in Toledo, Cleveland and Columbus, Ohio, in order to insure the securing of satisfactory plans. Plans were approved for a county jail in Faribault county. Plans were submitted for a county poorhouse in Rock county, and it was voted to recommend to the board of commissioners that they do not build a poorhouse at present. A request was received from the commissioners of Dakota county for advice with reference to building a county poorhouse, and they were advised to take immediate steps for such a building. The secretary was instructed to incorporate the proceedings of the State Conference of Charities and Correction in the report of the board. Mr. Durment reported visits to the schools for the deaf, blind and feeble-minded. The board inspected the soldiers' home.

July 2, 1895.—Dr. W. W. Folwell of Minneapolis took his seat as a member of the board, in place of Hon. Geo. A. Brackett, resigned. Plans were approved for a county jail in Hennepin county and Freeborn county. Plans were disapproved for lockups in the villages of Wells and Monticello, for the reason that they did not comply with the provisions of the law.

Oct. 8, 1895.—Plans were approved for a lockup in the village of Watertown, subject to certain amendments. The commissioners of Big Stone county were advised against the erection of a county poorhouse. Plans for a lockup in the village of Fountain were approved, subject to certain amendments. Dr. Folwell reported visits to Fergus Falls hospital and the Otter Tail county poorhouse and jail. The board inspected the state prison at Stillwater.

Jan. 30, 1896.—In response to request for advice, the commissioners of Carlton and Stevens counties were advised against the erection of county poorhouses in those counties. Requests for advice with reference to the erection of county jails were received from the commissioners of Martin, Pine and Polk counties. The commissioners of Martin were advised in favor of the erection of a county jail similar to the jails of Nobles and Pipestone counties. The commissioners of Pine county were advised to visit jails in other counties in order to form a suitable judgment as to their needs. The commissioners of Pope county were advised to build a jail similar to the Nobles county jail. The secretary was authorized to draft a law to regulate the disposition of non-resident paupers,

insane persons, etc., for the consideration of the board at a subsequent meeting.

April 7, 1896.—Meeting at Minneapolis. It was voted to designate the Nobles county jail as a district jail. The secretary presented a draft of a bill to regulate the treatment of non-resident paupers, insane persons, etc., which was considered; and the secretary was instructed to furnish copies to the other members of the board and to correspond with the authorities of other states with reference to the proper form of such legislation. A request was received from the authorities of the village of Harmony with reference to advice for building a lockup, and they were notified as to the legal requirements of such a building.

July 15, 1896.—The committee on jails reported their preliminary advice to the commissioners of Kittson county with reference to the building of a county jail, which was approved. Plans were submitted for a county jail in Kittson to be included in a court house building, the whole building to cost about \$15,000, and the commissioners were advised against the erection of a jail, for the reason that the entire sum available would be insufficient for the erection of a suitable court house. Plans for a lockup in the village of Utica, the village of Elgin, and the village of Clara City were disapproved, for the reason that they did not comply with the conditions of the law. Plans for a lockup in the village of Harmony were approved, subject to certain changes. Plans for a lockup in the village of Stewartville were approved. The following communication was received from H. J. Collins, county auditor of Otter Tail county:

The board of county commissioners have asked me to procure from your board the necessary consent to continue the maintenance of the county poorhouse in this county. Section 7, chapter 170, General Laws 1889.

In response to this communication, the following resolutions were adopted:

*Resolved*, That the State Board of Corrections and Charities approve of the maintenance of a county poorhouse by the commissioners of Otter Tail county, for the reason that such an institution is indispensable for the proper care of the poor of said county.

*Resolved*, That the State Board of Corrections and Charities recommend that the commissioners of Otter Tail county take immediate steps for the erection of a new poorhouse, for the reason that the present poorhouse is too small, does not provide for the separation of the sexes, does not provide for the care of the sick, does not provide facilities for bathing and ventilation. In our judgment, it is impossible to make such additions to the present building as will make it suitable for its purposes; but it will be more economical to abandon the present building and construct a new one.

Doctor Folwell gave notice that he would offer a resolution favoring the residence of all officers of state institutions outside of the institutions, as far as practicable; and, also, in favor of the eight-hour day for institutional employes. The secretary was instructed to communicate with the superintendents, assistant superintendents, stewards and trustees of the state institutions and ask for information and opinions with reference to this proposition. The board considered the recommendations to be submitted to the legislature of 1897.

## SUMMARY OF EXPENSES OF THE BOARD.

	1894-95.	1895-96.	Totals.
Traveling expenses of C. Amundson.....	\$50.29	\$35.75	\$86.04
“ “ G. A. Brackett.....	21.63	.....	21.63
“ “ E. S. Durment.....	2.27	105.60	107.87
“ “ W. W. Folwell.....	.....	63.96	63.96
“ “ C. P. Maginnis.....	142.10	60.80	202.90
“ “ J. H. Rich.....	17.26	6.77	24.03
“ “ S. G. Smith.....	17.98	.....	17.98
“ “ J. B. Wakefield.....	29.06	25.12	54.18
“ “ the secretary.....	342.18	404.84	747.02
Salary of the secretary.....	3,000.00	3,000.00	6,000.00
Salary of the clerk.....	1,200.00	1,191.29	2,391.29
Salary of the stenographer.....	480.00	480.00	960.00
Extra clerk hire.....	.....	6.93	6.93
Postage and telegraphing.....	352.61	286.73	639.34
Miscellaneous expenses .....	344.62	332.21	676.83
Totals.....	\$6,000.00	\$6,000.00	\$12,000.00

All of which is respectfully submitted.

C. AMUNDSON,  
E. S. DURMENT,  
W. W. FOLWELL,  
C. P. MAGINNIS,  
JOHN H. RICH,  
J. B. WAKEFIELD.











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